

# AMERICAN ARTISAN

NOVEMBER  
1942



RESIDENTIAL AIR CONDITIONING  
ARM AIR HEATING • SHEET METAL CONTRACTING

ESTABLISHED  
1880

# AMERICAN ARTISAN

WARM AIR HEATING • AIR CONDITIONING  
SHEET METAL CONTRACTING



## THIS IS IT . . .

AMERICAN ARTISAN's January 1943 Annual Directory Number which for the 11th successive time presents to the industry the most complete, authentic and up-to-the-minute directory of warm air heating, air conditioning and sheet metal products, will soon start to press.

Reaching the A-1 dealer-contractors in the industry . . . the KEY men who are now handling the bulk of all priority war-time business . . . this issue assures you that your advertising will be read by the men who are in a position to buy NOW . . . the men who will be ready to "go places" when "it's over over there."

Read, kept and referred to throughout the year this Annual January Directory Number, with advertisers "spotted" in the directory will keep your name and trade mark before the eyes of present and future buyers for the duration.

Your advertising in this January 1943 issue . . . and you should use full space to present your complete line . . . will prove to be the best investment you can possibly make . . . for with space selling at regular rates . . . NO ADVANCE IN PRICE . . . it offers you the advertising buy of the year. Don't fail to put the Annual January Directory Number of AMERICAN ARTISAN on your list as a "must" . . . and to assure best possible location. . . .

*Reserve Your Space* **NOW!**

AMERICAN ARTISAN  
6 NORTH MICHIGAN AVENUE CHICAGO, ILLINOIS

# RYERSON

## Founded in 1842

## Completes

## One Hundred Years of

## Steel-Service

November 1, Joseph T. Ryerson & Son, Inc. will mark its one hundredth anniversary, the completion of its first century of steel-service.

In 1842, men came to the little Ryerson store for iron to make horseshoes, axles and rims for wagon wheels. Today, there are ten great plants in as many key industrial centers.

In peace—Ryerson stocks supplement the tonnage required for production schedules, and meet all rush requirements for factory maintenance and repair.

In war—These stocks made possible quick change over to war production, and are now breaking bottlenecks—supplying emergency steel of every kind—to the factories that are speeding up the flow of war equipment to our men in the field.

For one hundred years—through peace and war—fires and floods—the nation has turned to Ryerson stocks for the quick shipment of steel for every purpose.

Based on this long successful record, we expect to serve with even greater speed and accuracy in the years to come.

JOSEPH T. RYERSON & SON, Inc., Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City



# AMERICAN ARTISAN

Covering All Activities in Residential Air Conditioning and Small Commercial Cooling, Warm Air Heating, Sheet Metal Contracting and Fabricating

WITH WHICH ARE MERGED

FURNACES  
SHEET METALS

AND

Warm-Air  
Heating

J. D. Wilder, Editor

A. A. Kennedy, Assistant Editor

Vol. 111, No. 11

November, 1942

Founded 1880

## CONTENTS

Jobbers Are Promised More Sheets—Maybe . . . . .	22
Ceiling Prices Set On Maintenance—MPR-251 . . . . .	23
Furnace Conversion Price Ceilings—MPR-236 . . . . .	25
Certificate of War Necessity for Trucks . . . . .	27
Interpretations, Amendments, to Present Orders . . . . .	28
On Our Industry's Front . . . . .	30
Kruckman—Priorities Changed to Allocations . . . . .	32
Priority Questions and Answers . . . . .	34
Sheet Steel Distributors Convention . . . . .	69
Association Activities . . . . .	72
New Products . . . . .	74
New Literature . . . . .	75
With the Manufacturers . . . . .	77
American Artisan's War News Section . . . . .	98

## THE RESIDENTIAL AIR CONDITIONING SECTION

Let's Fix the Furnace "Fixers" . . . . .	37
Three Level War Houses (Defense House Heating) . . . . .	38
Baerenklau's "Hedges" Against Recession . . . . .	40
Fuel Oil Rationing Formula in Charted Form . . . . .	42
Substitute Materials for Ducts (Part 2) . . . . .	47

## THE SHEET METAL SECTION

Instruction Outline for Welding Aluminum Sheet . . . . .	55
Fabricating War Products—Plane Parts . . . . .	59
Substitute Coatings for Galvanizing . . . . .	62
Neubecker—Pattern for Blowpipe Y-Branch . . . . .	64

Member of Audit Bureau of Circulations—Member Associated Business Papers, Inc.

Published monthly by Keeney Publishing Company, 6 N. Michigan Ave., Chicago, Ill., U. S. A. Copyright 1942 by Keeney Publishing Company. Publisher—Frank P. Keeney; Manager—Chas. E. Price. Advertising staff: Wallace J. Osborn, New York City, Telephone—Murray Hill 9-8293; J. D. Thomas, Chicago, Telephone—State 6916; Robert A. Jack, Cleveland, Telephone—Yellowstone 1540; J. H. Tinkham, Los Angeles, Telephone—Richmond 6191.

Yearly Subscription Price—U. S. and possessions, Canada, Mexico, South America, Central America, \$2.00; Foreign, \$4.00. Single copies, U. S. and possessions, \$.25. Back numbers, \$.50. January, 1942, Directory issue, \$1.00 per copy. Entered as second-class matter, July 29, 1932, at the post office at Chicago, Illinois, under the act of March 3, 1879.

**More than 8,000 copies of this issue are being distributed**

## In This Issue

**I**N the editorial (page 22) and in our report of the convention of the Sheet Steel Distributors (page 69) we call attention to the announcement from Washington—via responsible officials—that "directives" and amendment 7 to M-21-b now guarantees jobbers of a definite tonnage of sheets each quarter.

Further, that the jobber may now elect to sell 150 tons of sheets each quarter on low priority ratings in place of the 5 per cent quota previously permitted by Amendment 6 to M-21-b (see August, page 17).

This change is beneficial—perhaps not as beneficial as we might hope for—but certainly signifying that Washington recognizes that repair and maintenance can be kept going only if the industry's small jobbers are permitted to sell larger amounts of material on low priority ratings.

We would also like to call attention to Arnold Kruckman's Washington Letter on page 32 in which he gives a preview of the important switch from priorities to direct allocations.

So far this direct allocation of materials has been tried out on a few major war product industries. Eventually, all industries using carbon steel will probably be switched over.

The reason for the change is that under priorities every manufacturer applied for his own ratings, irrespective of the ratings given other manufacturers making parts for the same war product.

The result was that in tanks, for example, there might be 20,000 steering mechanisms ready, but only 5,000 turrets. The steering mechanism manufacturers were thereby using much more materials than they needed to use and steel distribution was all out of kilter.

Allocations, it is hoped, will "mesh" all production and perhaps industries, like ours, will get materials we can't get now.



# SAL-MO

## NEW *Prefabricated and Packaged* **SUPPLY DUCT**

Sal-Mo Supply Duct is a new, non-metallic, strong, durable material for constructing supply and return lines in warm air heating and air conditioning systems.

Only about 10% of the total material in a typical Sal-Mo Supply Duct Installation is metal. And this metal is in the form of standard fittings.

No special skill, tools and equipment, cementing or sealing are required to erect Sal-Mo Supply Duct. It is readily cut with saw or knife. The ease with which it is handled assures greater speed and an appreciable reduction in installation cost.

Sal-Mo Supply Duct has been checked and approved by rated, independent

laboratories and authorities, and is known to possess a large margin of safety. Duct systems of this new material are tight, quiet, insulated, and they save fuel.

Sal-Mo Supply Duct is a new basic material for safe, permanent installations . . . and it represents a real saving in critical metals.

Not only is Sal-Mo Supply Duct available in unlimited quantities, but it is furnished in a complete range of sizes for any domestic or industrial requirements. It is also available in flat sheets.

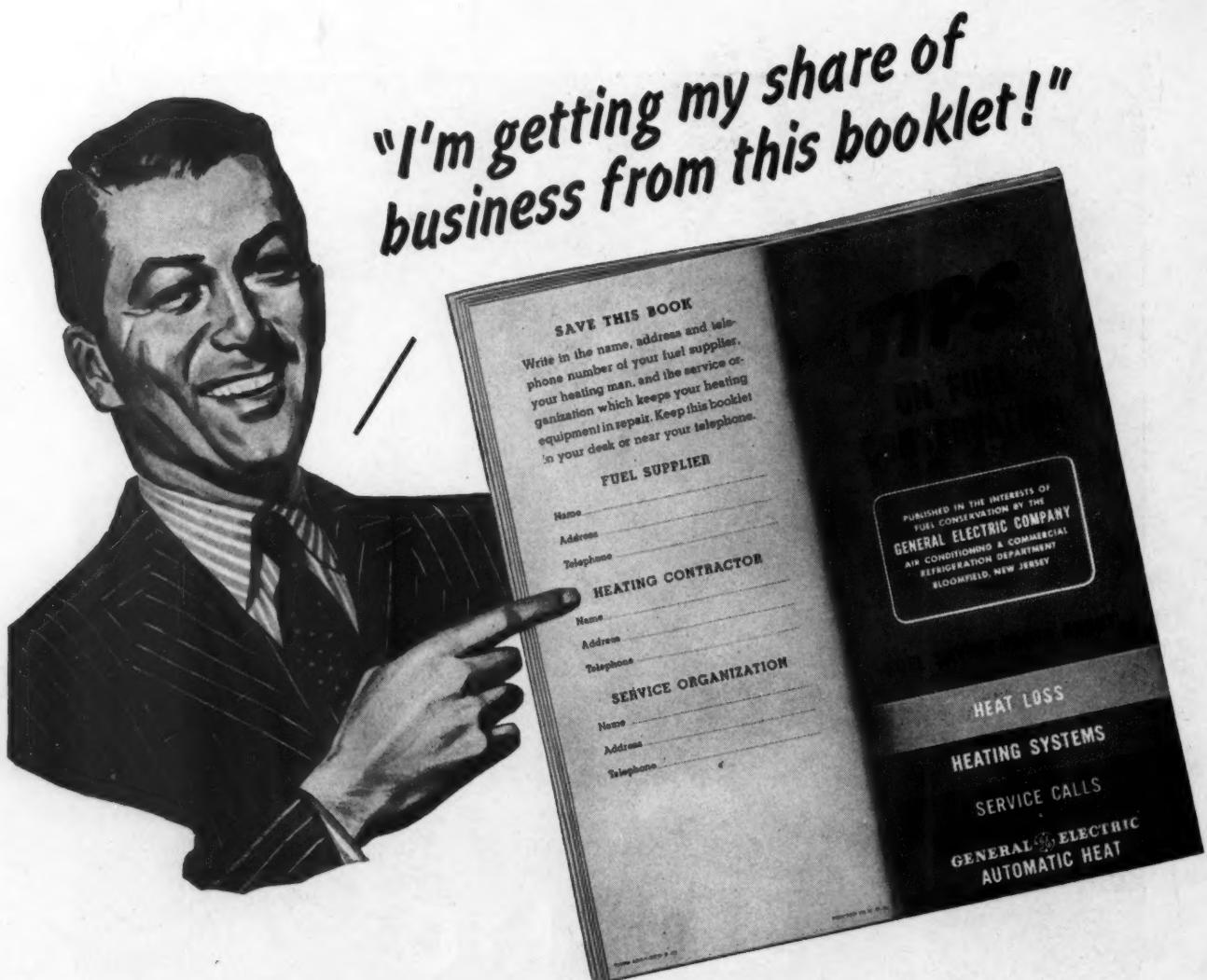
PATENTS PENDING

SEE YOUR JOBBER OR WRITE



## SALL MOUNTAIN COMPANY

176 West Adams Street • Phone ANDover 2414 • Chicago, Illinois



# are you?

G-E dealers who are promoting this booklet, "Tips on Fuel Conservation," find that it not only helps customers and prospects, but themselves as well. It has opened the door to many new service agreements, and helps them make or renew many home owner contacts.

As a G-E Dealer, this booklet will also build good will for you and provide a foundation for post-war sales of General Electric heating equipment. So make the most of it by seeing that

home owners in your territory benefit by the recommendations contained in it.

Advertisements featuring this booklet are now appearing in *Life*, *The Saturday Evening Post*, *American Home* and *Better Homes & Gardens*. This program of national advertising is aimed to create a ready market for G-E heating equipment after the war.

*General Electric Company, Heating Division 25311, Bloomfield, New Jersey.*

—GENERAL ELECTRIC—

Through this Bearing



run the shafts . . .

of trouble-free  
WAR PRODUCTION

Turning now for freedom, the shafts of American industry are making and breaking records.

Bearing failures must not be tolerated.

Victory will come from many successes, not failures. And to insure the even flow of our vast production machine, shafts must revolve endlessly without shut-downs.

Randall bearings are giving trouble-free service in many standard installations on virtually every type of war production machinery.

If you have bearing problems on any kind of war production equipment, our engineers will cooperate without obligation. Write for catalog No. 42 covering full line of Randall Pillow Blocks.

\* Illustrated is the Randall Flange or Side Mount, self-aligning, self-lubricating Pillow Block — one of many styles and sizes.



#### REPRESENTATIVES

C. W. Marwedel  
San Francisco, Cal.

Salt Lake Hardware Co.  
Salt Lake City, Utah

Edward D. Maltby Co.  
Los Angeles, Cal.

Tek Bearing Co.  
177 LaFayette, New York City  
1192 Commonwealth Ave., Boston, Mass.

**Randall GRAPHITE PRODUCTS CORPORATION**  
DEPT. 1111 609 W. LAKE ST. CHICAGO, ILL.

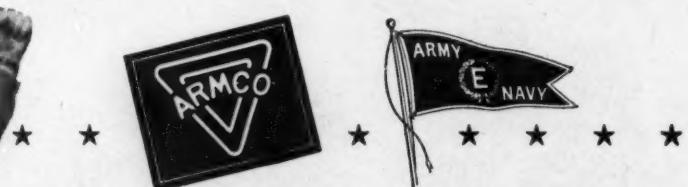
# KEEP HIM CHARGING WITH MORE AND MORE SCRAP!

Does he have courage—and the will to win? **HE DOES!** Yet our American fighting man can't win the war with these qualities alone. He must have modern weapons made of steel—in quantities never dreamed of before!

This means that every available pound of scrap steel in the nation must go to America's steel mills. The reason? About a half-ton of scrap is needed to produce a ton of new steel.

You especially can help. Every time you see discarded heating and ventilating equipment (old furnace grates, water heaters and tanks, for example) urge the owner to sell it to a scrap dealer. The steel industry will buy it from him at government-controlled prices.

Remember, this job of gathering scrap iron for war is *not* a campaign. It must go on as long as the war lasts. Help start the scrap flowing—and *keep* it flowing. The American Rolling Mill Company, 3311 Curtis Street, Middletown, Ohio.



This advertisement is in support of the Salvage Program of the Conservation Division of the War Production Board



PHOTO U. S. ARMY SIGNAL CORPS

# *A FITZGIBBONS unit* for war-time heat



Designed to government specifications for war-workers housing —

Fitzgibbons "Weldseal" steel construction permanently excludes dust and gases from air stream —

All seams and joints electrically welded, the Fitzgibbons way —

Blower unit resiliently mounted and balanced for quiet vibrationless operation —

Automatic temperature control switch turns blower on or off —

Grey-iron grates have air spaces correct for complete burning of fuel —

#### READY NOW FOR PROMPT SHIPMENT

Completely assembled with exception of quickly installed jacket and plenum.

Thousands now in service. Mail coupon for complete data.

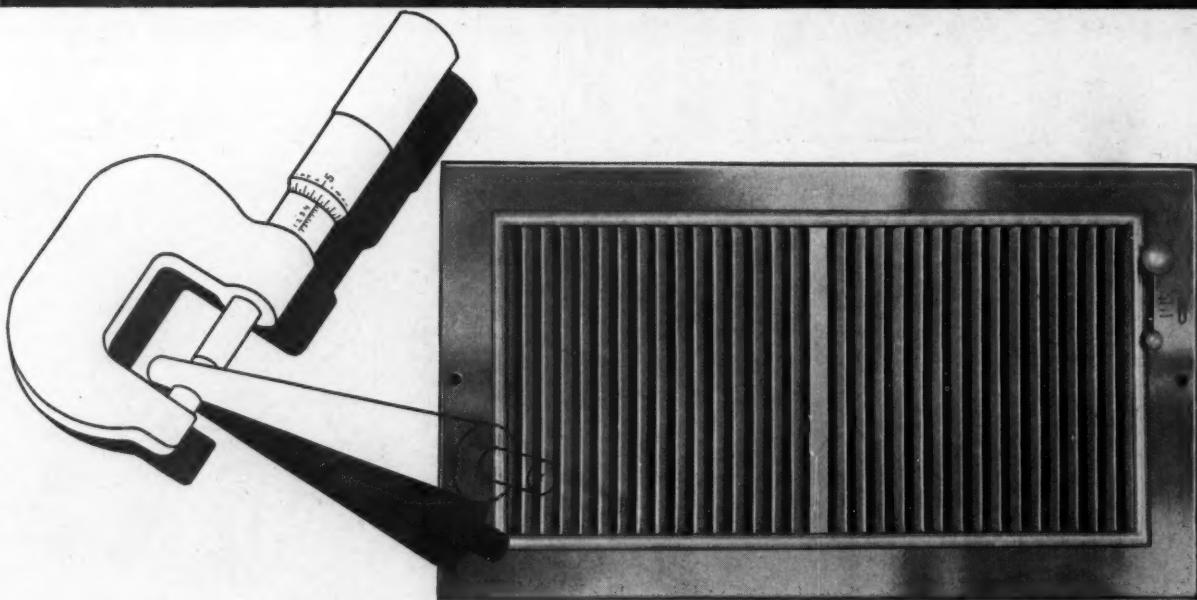
**BUY U. S. WAR BONDS  
AND STAMPS**

■ **Fitzgibbons Boiler Company, Inc.**  
101 PARK AVENUE, NEW YORK, N. Y.

AA-11

Send me the bulletin about the Fitzgibbons 80 FWA.

■ Name.....  
■ Address.....  
.....City and State.....



# *Air Control's* PRODUCTION OF PRECISION AIRCRAFT PARTS *means better REGISTERS and GRILLES* *today and After Victory*

AIR CONTROL workmen have been trained to turn out parts to meet tolerances of less than 1/1000 inch. Aircraft specifications require close inspection and accurate workmanship.

AIR CONTROL workers are also turning out Registers and Grilles—this aircraft training is reflecting in our regular products. This means higher quality in all AIR CONTROL Products both today and after Victory.

*When you choose Registers and Grilles—choose the best—AIR CONTROL.  
There is an AIR CONTROL Register for your every need. Adequate stocks  
both at our plant and at all AIR CONTROL Jobbers.*



*Air Control Products, Inc.*  
COOPERSVILLE • MICHIGAN

# A Declaration of Faith in Your Future – and Ours

CHICAGO  
MINNEAPOLIS  
OMAHA  
KANSAS CITY  
SALT LAKE CITY  
LOS ANGELES  
ST. LOUIS  
MEMPHIS  
ATLANTA  
DETROIT  
PITTSBURGH  
PHILADELPHIA  
BALTIMORE  
WASHINGTON, D.C.

CABLE ADDRESS  
"MUELLER-MILWAUKEE"

To the Heating Trade:

The chier thing that we have to sell to you today is our faith in the future of the building industry, and our belief that improved heating and air conditioning equipment must play an important part in that future.

We are engaged with you in a branch of the industry that has seen the curtailment of its normal efforts, the elimination of many vital materials, do cheerfully anything necessary to make a contribution and with a willingness to cut war effort which alone assures a future for any of us.

In the long view, when this great effort brings victory, it becomes merely an interruption in the history of progress. In our own case, we have lived through three major wars and several depressions during the past 85 years -- each time emerging stronger than before.

During World War I, the L. J. Mueller Furnace Company devoted almost 100% of its effort towards the production of material used in successful prosecution of the war.

In this war, we have made constant adjustments in an attempt to continue the production of our line of heating equipment where it would do the most good in the war effort: for defense housing, industrial plants, military barracks, etc.

We have also undertaken the manufacture of many items foreign to our regular line which are required by our armed forces. At the same time, we have expanded our research and engineering facilities for the further refinement and development of our line of heating products.

When peace comes, you will find us ready with a line that is right up to the minute and with a name that is well and favorably known to your customers. We are planning confidently to continue our pleasant relations with you, in the interest of a successful and mutually profitable participation in the post-war building and rehabilitation program.

Sincerely yours,

H. P. Mueller  
President

D-26

**MUELLER** Milwaukee  
HEATING AND AIR CONDITIONING

# The United Nations Call for all Out Production for Victory

THE plea of the United Nations today is all out production for Victory.

In keeping with this plea, the manufacturing facilities of THE C. A. OLSEN MANUFACTURING COMPANY, manufacturers of the complete line of Luxaire warm air heating and air conditioning units for coal—gas—oil, are now being converted 100%. In the short period of time since the all out plea was made the plant facilities have been converted 90% to the production of war materials.

Not only in furnace manufacturing is this con-

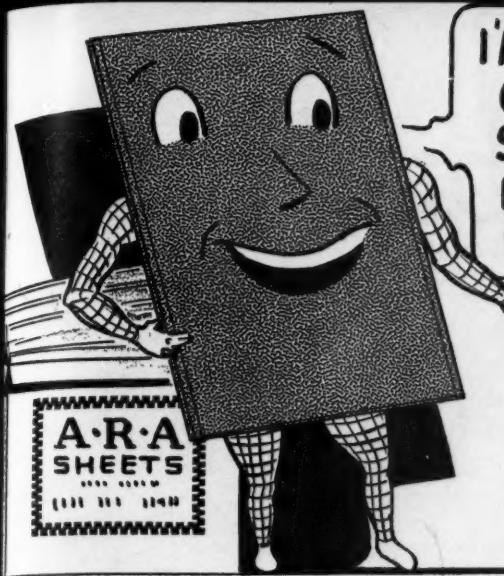
version taking place but in every kind and type of manufacturing in the country. Time, today, is the most valuable factor in complete conversion. Delay may mean the prolonging of this war many years which will mean needless, greater sacrifices for our armed forces, plus the longer time it will take to revert to peacetime operations.

We, all of us, are going to cheerfully endure many so-called hardships for the duration, so that in years to come we may again enjoy health—prosperity—happiness, in a world free from tyranny.

**BUY MORE WAR BONDS AND STAMPS**

*Luxaire*  
WARM AIR FURNACES  
AIR CONDITIONING UNITS

**THE C. A. OLSEN MFG. CO., ELYRIA, OHIO**



I'M IN  
GREAT  
SHAPE  
FOR ANY  
POSITION

## You Can Make These Shapes in Your Own Shop

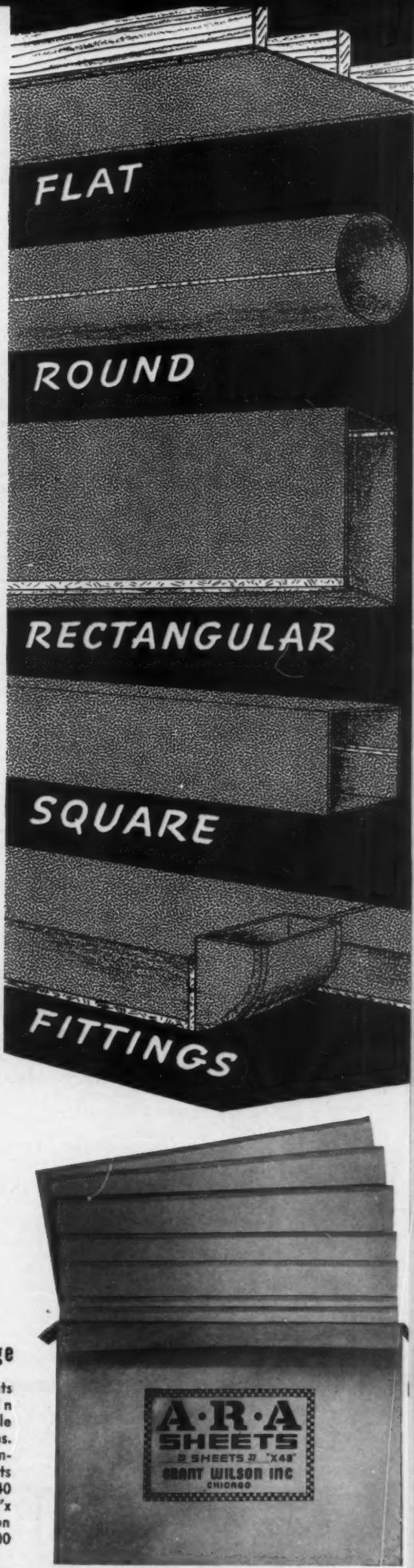
A.R.A. Sheets are versatile. They were especially designed and constructed that way—workable into various shapes and fittings—filling the gap where sheet steel is not available.

A.R.A. Sheets have reached their present high standard after a careful and exhaustive field research so they would meet the usual shop requirements and trade practices.

A.R.A. Sheets are used by the established tradesmen who are skilled in the making of ducts, casings, and fittings with their own tools and equipment. New methods and uses for A.R.A. Sheets are continually being discovered.

A.R.A. Sheets are built to serve on the greatest number of jobs, and on the greatest part of each job.

Asbestos clad A.R.A. Sheets are tough yet flexible (Mullen tested over 200 lbs. per sq. in.)—rigid but not brittle—fire-proofed and water-proofed—are light in weight, will not dry out, crack, crumble, or chip, have a high insulating value (K, 45 B. T. U.) and good sound-deadening properties. They are easy to handle, will bend without breaking and can be rolled, punched, scored and die cut, still retaining their rigidity and strength.



### The Package

A.R.A. Sheets are shipped in easy-to-handle or store cartons. Each carton contains 20 sheets 33" x 48" or 40 sheets of 16 1/2" x 48". A carton weighs about 100 lbs.

*Insist on genuine A.R.A. Sheets from your local jobber*

4101 WEST  
TAYLOR ST.

**GRANT WILSON, INC.**

CHICAGO  
ILLINOIS

# He makes *your* business

## HE'S YOUR REPUBLIC SHEET DISTRIBUTOR

He's an established businessman whose interests are deeply rooted in your business affairs.

It's *his* business to serve *your* business—and he has invested a huge sum, trained a large organization and developed the knowledge and experience to do it.

To serve you efficiently, he has made it *his* business to know *your* business, *your* class of work, *your* equipment. He knows sheet metal and how best to fabricate it. He has carried large stocks for your selection.

It's *his* business to be able to serve *your* business with sheets—Republic Steel, U-Loy\* Copper-Bearing Steel, Enduro\* Stainless Steel, Toncan\* Iron, Taylor Roofing Ternes. He has relieved you of carrying large stocks that take valuable shop space, add material handling, cause de-

preciation losses and raise insurance rates.

Now—with wartime production taking more and more steel for ships, tanks, trucks and other war items, especially flat-rolled steel that otherwise might have been processed into sheets—his stocks may not be as complete, his service not quite as fast. But he still may be able to serve you in many ways. And he'll use them all to help you.

Get to know your Republic Sheet Distributor. Call him *first* on any sheet supply problem—and be sure to give him all the facts on how the materials are to be used, for what class of work, the priority rating and other details. He needs all this information so that he can give you the best possible service today. Republic

Steel Corporation, General Offices, Cleveland, Ohio.

\*Reg. U. S. Pat. Off.



# REPUBLIC Toncan

An alloy of refined open-hearth iron, copper

his business



*Iron SHEETS*  
and molybdenum — that grows old slowly

# RYBOLT

## Your Customers Look to You for Help on Their Heating Problems

• Furnace owners must get along this winter with lower room temperatures and burn less fuel. Naturally, they look to you dealers for guidance on their heating problems.

It is your responsibility to tell them how to put their furnaces in prime operating condition—urge them to have them cleaned and repairs made where necessary—replacing warped or broken parts. The cost of such service is more than offset by the resulting savings in fuel.

### Use Original Rybolt Repair Parts

Because they fit better, take less time to install, and operate more efficiently, it will pay you



to replace parts on RYBOLT furnaces with original RYBOLT repair parts. This is the only way you can insure dependable service and consumer satisfaction.

### Get in the SCRAP

Help the war effort by getting in all the scrap possible. Old and discarded metal from repaired or replaced furnaces is one source. Another is in *your own shop or premises* where enough worn out machinery and unused or discarded materials and equipment might possibly be found to help build another tank or at least a jeep. Clean house now and keep our steel mills going to supply Uncle Sam's war needs.

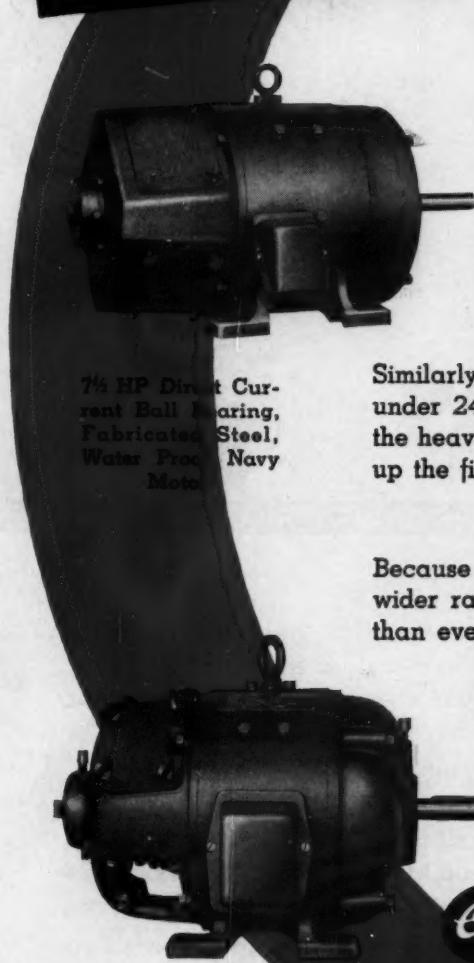
Save or Slave-  
Buy War Bonds



THE RYBOLT HEATER COMPANY  
615 MILLER STREET • ASHLAND, OHIO

# CENTURY MOTORS

are Famous for Their  
Ability to "Keep a-running"



They are serving the Armed Forces of the United Nations with a distinction that is important to you.

### *Standing the Shock of Battle*

In the Naval Service, in typical applications, modern Century Motors aboard ship must stand up under the shocks of gun-fire and bombing attacks. They are especially built to take the punishment of actual combat.

### *And the Demands of War Production*

Similarly, on the production front, Century Motors are staying on the job under 24-hour, continuous, 3-shift production. They take the shock loads of the heaviest machinery, yet their unusual freedom from vibration helps speed up the finest precision machine tool production.

### *For the Future*

Because of War demands, Century is now engaged in the production of a wider range of motors, generators, and other rotating electrical apparatus than ever before. As a result, when Victory has been won, we'll meet your requirements with an extended, improved, and more complete line than we have offered since our founding in 1903.

Because of what Century is doing today — we'll serve even better tomorrow.

#### **CENTURY ELECTRIC COMPANY**

1806 Pine Street, St. Louis, Missouri  
Office and Stock Points in Principal Cities



301

Century Motors, both alternating and direct current, are being produced for the operation of the many kinds of machine tools, industrial fabricating and

processing machinery used in the manufacture of ammunition, munitions, cargo and combat ships, and for driving their operating equipment.

**One of the Largest EXCLUSIVE Motor and Generator Manufacturers in the World.**

# This is No Rainbow

• • BUT A POT OF  
GOLD IS WAITING!



● War's grim necessity... the drastic restriction of all normal business activity... has nothing appealing in it. We wouldn't be Americans if we even pretended to like it.

But, just as emphatically, we wouldn't be Americans if we didn't know how to "take it" for the duration. By now it's pretty clear that there's one main job: *to thrash the upstarts who would throttle our enterprise permanently!*

In the heating industry, as in many others, the job today is *Service*... saving what we have... making it last. It's a job that tests our skill and our resourcefulness. And it's thoroughly worth-while. For, when the

lights go on again all over the world... when the rainbow does come out... there'll be more than a mythical pot of gold for those who have ridden out the storm.

Dealers and service people in business then will face a pent-up demand, a market that dwarfs all previous experience. To make sure you're on hand when this occurs *do that service job now* in the best way you know!

And remember... Penn is prepared to furnish, under existing priority rules, new controls to replace those which cannot be made to function efficiently. *Penn Electric Switch Co., Goshen, Indiana.*





# "PANCAKES" to flatten the Axis

The brass "pancakes" . . . 70% copper, 30% zinc . . . which you see here will soon be shell cases waiting to be filled with Axis-bound explosive.

Tremendous quantities of copper are needed for ammunition . . . to arm our fighting men in every corner of the globe. This demand for copper, plus the demands of the gigantic shipbuilding program, of tank and plane producers and other war

industries, consume every available ounce of the red metal.

Copper's time-honored properties with which you have been so long familiar . . . rust immunity, corrosion resistance, and easy fabrication . . . are the reasons why this durable metal and its alloys are in such great demand by war-essential industries.

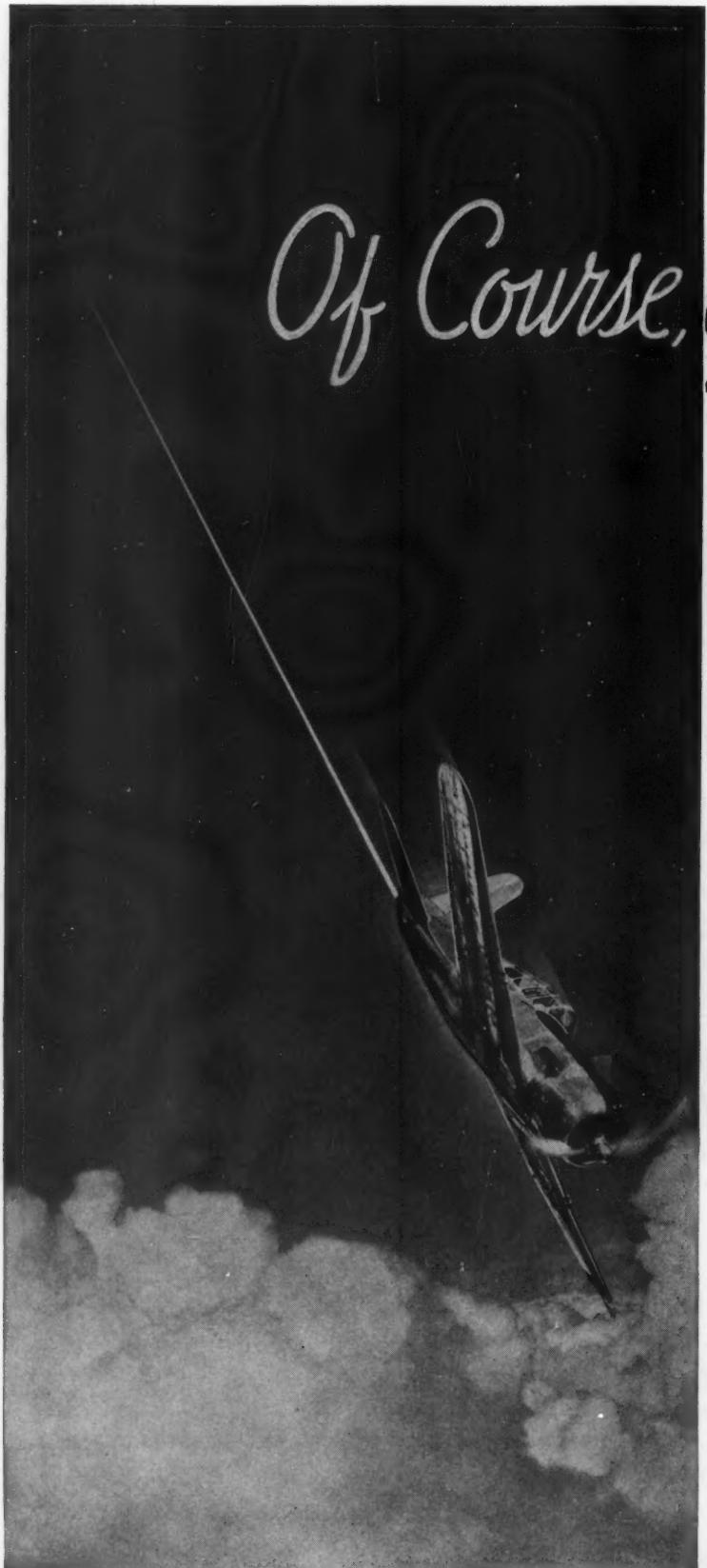
4220



## Anaconda Copper

THE AMERICAN BRASS COMPANY • General Offices: Waterbury, Connecticut

Subsidiary of Anaconda Copper Mining Company • In Canada: ANACONDA AMERICAN BRASS LTD., New Toronto, Ontario



# Of Course, You're Helping

...TO KEEP 'EM FLYING

...TO WIN THE WAR

•

Some people speak of the current world conflict as total war. Others refer to it as a war of planes, tanks, guns and ships. Both are right, of course, but some time ago we heard it described by a name which we think is possibly even more appropriate. It was called the world struggle for metals.

Surely, never before in our history have we Americans appreciated the true worth of steel, of copper, tin, aluminum and all the other natural resources as we do today. This is particularly true of those of us in the great metal working industries. But, even as we feel the pinch of these restrictions, we can not fail to understand that each and every one of us must do his share to protect the vast resources which have made our nation great if we wish to retain them.

For many months, you and we have been learning to get along without materials we really need. That will continue to be a part of our jobs in helping to win the war. Others are helping by working long hours on the production lines . . . still others by serving with the armed forces. Only by such coordinated effort . . . sacrifice . . . production . . . fight . . . will our nation go on to sure and complete victory.

*Courtesy Vultee Aircraft, Inc.*

A DEPENDABLE SOURCE OF  
SUPPLY FOR 83 YEARS

THE J. M. & L. A.  
**OSBORN CO**  
CLEVELAND, OHIO  
BUFFALO • CINCINNATI • DETROIT  
Manufacturers—Distributors of Metals and Metal Products

CHICAGO		
BALTIMORE	Teletype CG. 605	BRUnswick 2000
BOSTON	Teletype BA. 63	GILmore 3100
CLEVELAND		STAdium 9400
PITTSBURGH	Teletype CV. 153	HEnderson 5750
ST. LOUIS	Teletype PG. 475	CEdar 7780
MINNEAPOLIS-ST. PAUL		MAIn 5235
NEWARK, N. J.		NEstor 2821
	BErgen 3-1614	Bigelow 3-5920
		REctor 2-6560

*Call Scully for*  
**NATIONAL EMERGENCY  
ALLOY STEELS**

**T**O save critical materials such as nickel and chromium, "National Emergency Alloy Steels" have been developed as substitutes for the old style alloy steels. These new alloy steels cover a wide range of properties and were especially designed to meet present conditions. Many of them are actually out-performing the steels previously used.

Our stock of these "National Emergency Alloy Steels" is now coming in. We welcome your inquiries and orders and would be happy to assist you in determining the grades best suited to your needs.

Telephone, wire or write the Scully Warehouse nearest you—see phone and teletype numbers above.

**Do you lack** steel to complete a rush war job? Is your production in danger of being slowed down or stopped for want of some piece of steel or steel product? Then call the nearest Scully warehouse. Many such calls have kept wheels turning. If we don't have what you need, you can be sure that we'll do everything possible to help you get it.

Our first job, like yours, is to speed war production. Every one of our warehouses is on the job day and night. And although our stocks of steel are not what we wish they were, what we have can be yours in a hurry—subject, of course, to priority restrictions. So try Scully—note our phone and teletype numbers above.

# **SCULLY STEEL PRODUCTS COMPANY**

### **Distributors of Steel and Steel Products**

*Warehouses at CHICAGO  
ST. PAUL-MINNEAPOLIS*

NEWARK, N. J.  
CLEVELAND

## ST. LOUIS

BOSTON  
BALTIMORE



# UNITED STATES STEEL



## More Sheets For Repair—Maybe

**I**N the editorial in the August issue we called attention to Amendment 6 to M-21-b under which a jobber was permitted to sell—for repair and maintenance—only 5 per cent of his stock of sheets each quarter.

We pointed out that for many jobbers catering to the small dealer, this 5 per cent was not sufficient for repair and maintenance; hardly enough for smoke pipe alone. Also, that the other 95 per cent of the jobber's stock had to get an A-1-k or better which left the jobber sitting with too much of his stock unsold.

We call attention, now, to our report of the National Association of Sheet Metal Distributors convention in Chicago, where J. R. Stuart announced Amendment 7 to M-21-b and a "directive" under which a *guaranteed* monthly tonnage of sheets will be given each jobber.

WPB does not permit publication of manufacturer directives, so we cannot give readers the intent of the directive which guarantees quarterly tonnages to the jobber. But we do publish in our report of the convention just what Mr. Stuart said and the quotas he cited. We suggest every jobber and dealer read this carefully because it explains how much sheet your jobber will probably get for many months to come. Knowing your jobber will only get a certain amount makes it foolish to castigate your jobber when he can't fill your order because he hasn't the sheets.

There is a clause in Amendment 7 to M-21-b which now permits your jobber to sell 150 tons of sheets per quarter on A-10 rating if 150 tons is a greater quantity than 5 per cent of the quarterly quota. It is quite conceivable that many small jobbers will find the 150 tons satisfactory for their dealer volume of repair and maintenance where the 5 per cent tonnage was insufficient.

This 150 tons can be sold on A-10 ratings, or on any rating higher.

But there is another angle to this problem. Under the directive the jobber will be guaranteed a certain 12-month stock of sheets. For example, the jobber who in 1940 bought 250 tons or 500,000

pounds of sheets, is *guaranteed* under the directive only two cars for the year. Let's see how he will make out.

Two hundred fifty tons a year is 62 tons every three months. This is the tonnage the jobber *bought in 1940*. Under the directive a jobber this size will now get two cars a year. Even under ODT's insistence on maximum loadings of 80,000 pounds per car that's 160,000 pounds a year or 20 tons each three months. This jobber will now have 91 bundles of 36 by 96, 26-gauge to sell each month.

Whether or not a 250-ton jobber is a very small operator, or an average wholesaler, or a larger-than-average jobber, we don't know. What we can figure from the above is that there is not going to be enough sheets for our expected needs. The one hopeful thing is that this amount will actually be delivered each month and the jobber can count on it.

Guaranteed shipment, even though too small, is far better than the mess jobbers have been going through. If this guaranteed tonnage is *delivered* every jobber can break the amount up so that each of his customers will get *something*. The dealer, in turn, can have some idea of the amount of sheet he can expect and can, accordingly, arrange his activities to use up this volume of materials.

Both jobber and dealer will probably get more than the guaranteed tonnage. This extra may be strictly high priority stuff, but high priority business has not been a problem. Anything over the guaranteed delivery is gravy. It can build the jobbers' stock so he won't be caught completely out of stock. Or it can be allocated around to keep repair and maintenance going.

Amendment 7 to M-21-b and the directive discussed is not entirely the answer to our problem, but it does look as though it is a beginning which may prove to be the first step toward the final arrangement by which this industry can keep 10 million heating systems and 30 million buildings in repair during the emergency.

# Maximum Price Regulation No. 251

*Effective Nov. 5, puts a "ceiling" price over everything you do for repair, maintenance, new construction—on every type of building*

**A** NEW regulation providing specialized price control for the vast American construction industry was issued Nov. 5 by Price Administrator Leon Henderson.

The regulation covers all construction and maintenance services and sales in which contractors, builders, installers and erectors furnish building or industrial equipment or materials, together with the labor or services required for actual construction, installation or service.

The price provisions of the new regulation are designed to accomplish three things: (1) to maintain the March, 1942, price level (with some exceptions); (2) to afford a workable means for determining a maximum price at this level; and (3) to maintain a constant observation over prices of construction not already under the control of other government agencies in order to disclose any activity where existing controls are not adequately preventing inflationary pricing. Since May, the industry in most instances has been subject to the General Maximum Price Regulation.

Ceilings established by the new regulation are the equivalent of those generally in effect during March, 1942, adjusted for increases in labor costs between March 31, 1942, and July 1, 1942, the date on which the construction industry stabilization agreement between certain government agencies and the Building Trades Department of the American Federation became effective.

## Practically Everything Is Covered

The field covered by the regulation is so broad that it extends from the simple repair of a leak in a roof to the construction of a great project like Boulder Dam. Ceilings also are established on everyday ordinary household repair and service jobs by plumbers, paperhangers, carpenters and electricians.

The regulation covers construction and repair work when done by the "job," but it does not apply to the wages of persons performing these jobs. Thus, a re-roofing contract that named a price for the entire job is covered by this regulation, but if the householder bought the roofing material and employed a roofer to lay it, the pair would not be subject to the regulation.

The new controls are contained in Maximum Price Regulation No. 251—Construction and Maintenance Services and Sales of Building and Industrial Equipment and Materials on an Installed or Erected Basis—and becomes effective November 5, 1942.

## How Work Must Be Priced

In order to adjust the pricing mechanism to the nature and practices of the industry and to simplify its administration, maximum pricing formulas have been established for three different types of sales: (1) sales of all types not in excess of \$500; (2) sales in excess of \$500 on a cost-plus basis; and (3) sales in excess of \$500 on lump-sum basis.

A short formula has been outlined for the sales below \$500.

This is: To the price which would have been charged for the sale in March, 1942, the seller may add the increases in labor costs on the job up until July 1, 1942. The result is his maximum price.

For contracts of more than \$500 on a basis of cost plus a percentage of cost, or cost plus a fixed fee, or any other basis in addition to cost, maximum prices are to be computed as follows:

1. Materials and supplies at actual cost.
2. Labor at actual cost, but in amount not to exceed labor costs at rates in the area of installation in effect on July 1, 1942.
3. Other direct actual costs, including cost of sub-contracts.
4. Margin for overhead and profit at March (1942) rates, based on a comparable sale, or under certain circumstances, the seller's general experience and that of the industry.

In contracts of more than \$500 on a lump-sum basis, maximum prices are to be computed as follows:

1. Estimated cost of materials and supplies.
2. Estimated labor costs on the basis of rates in the area of installation in effect on July 1, 1942.
3. Estimated other direct costs, including sub-contracts.
4. Estimated reserve for contingencies.
5. Estimated margin for overhead and profit at March (1942) rates, listing the method by which this is computed.

## You Must Report All \$500 Jobs

Every contract entered into, excepting those of \$500 or less, after the effective date of the new regulation must be reported to the Office of Price Administration. The agency has designed a system for filing these reports, permitting contractors, where possible, to use copies of their estimating sheets and other ordinary cost formulas. They must be filed within ten days after the award of the contract.

Not less than ten days preceding final settlement

under a lump-sum contract, the contractor is required to file a further report with the Office of Price Administration, setting forth the actual costs of the various items indicated in the original estimates on file.

It is the responsibility of the contractor, in all instances, to have a copy of the new regulation available for examination by his purchasers.

The new regulation excepts from its provisions contracts with the War and Navy Departments under certain circumstances. Contractors engaged in work for the War or Navy Department, or subcontractors on their jobs, are excluded on the condition that the department involved certify that the contract or subcontract has been negotiated, or will be negotiated, in accordance with a plan previously filed by the agency with the Office of Price Administration.

With these exceptions, the new order is designed to regulate all kinds of sales and services common to the construction industry—repairs, improvements, remodeling, and new construction work for residential, commercial, industrial, sanitation, communications,

transportation, flood control, power development, reclamation, and other similar projects or services.

Other high points of the order are:

Bonuses: Prohibited except upon specific approval of the Office of Price Administration.

Certificates of Compliance: Mandatory in sales of more than \$500; may be demanded by purchaser in sales of less than \$500.

Enforcement: The criminal penalties, civil enforcement actions, license suspension proceedings and suits for treble damages provided in the Emergency Price Control Act of 1942 are applicable against violators. There is a sharp prohibition against evasion.

Licensing, Registration: Operators licensed as a condition of doing business as of effective date of order may be required to register.

Records: Must be kept available for the Office of Price Administration examination.

Petitions for Adjustment: May be sought by contractor engaged on Government contract, or sub-contract, who believes the regulation threatens to impede production of any essential war commodity.

## Questions and Answers on PR-251

THE following explanatory questions and answers on Maximum Price Regulation No. 251—Construction and Maintenance Services and Sales of Building and Industrial Equipment and Materials on an Installed or Erected Basis—were released today by the Office of Price Administration.

Q. What persons are subject to the new regulation?

A. It covers all contractors, builders, installers, and erectors supplying construction and maintenance services or making sales in which they furnish building or industrial equipment or materials, together with the labor or services required for actual construction, installation, or service.

Q. Does the regulation cover contractors, builders, installers, and erectors who supply *labor only*?

A. Yes, except that services rendered by an employee to any employer are *not* covered. Anyone supplying a service common to the construction industry where actual construction, installation or service is sold in connection with a fixed structure is covered. This includes, for example, the installation of a boiler.

Q. Are suppliers of material only subject to the regulation?

A. No. Actual labor or services must be supplied, in addition to materials. Sales of materials are covered by other regulations.

Q. Are owners who do their own building, installation, or erection covered?

A. No, except insofar as they have certain responsibilities as purchasers.

Q. What must a contractor do before accepting a job?

A. He must notify the purchaser of the existence of

the regulation, and upon request, show a copy to the purchaser.

Q. May bonuses be paid or provided for in the contract?

A. Not unless special permission to do so is granted by the Office of Price Administration.

Q. Is the painting of a house or repairs to plumbing covered by the regulation?

A. Yes. The only exception is the owner who hires labor direct and supplies the material himself.

Q. Are contracts entered into prior to the date of the regulation covered?

A. No. However, a substantial modification or addition may be considered a new contract.

Q. Is the conversion of heating plants from oil to coal or other fuel covered by this regulation?

A. Yes, except in certain states when Maximum Price Regulation No. 236 will apply. Maximum Price Regulation No. 236, which was drawn specifically to cover oil burner conversion, may have its coverage extended from time to time.

Q. Are municipalities subject to the regulation?

A. Yes, their responsibilities are the same as any other owner or purchaser.

### DETERMINATION OF MAXIMUM PRICES

Q. How are maximum prices determined in transactions of less than \$500?

A. To the price which the seller would have charged for the sale or service in March, 1942, based on his then prevailing rates for labor and material and his then prevailing margins, the seller shall add increases in labor costs up to July 1, 1942, the date when the AFL Building Trade stabilization agreement with cer-

(Continued on page 78)

# Furnace Repair Parts (for Conversion) Are "Ceilinged" by Price Regulation 236

From now on parts to convert oil to coal must be sold at these maximum prices per pound—18 cents dealer to ultimate consumer;  $13\frac{3}{4}$  cents manufacturer or jobber to dealer; 11 cents manufacturer to wholesaler. Labor of installation must be priced at your March, 1942 schedule.

**E**FFECTIVE October 14, OPA has set prices for boiler and furnace parts used to convert oil burning equipment to use of coal. Pertinent sections of the order follow.

(Document No. 5717)

## PART 1346—BUILDING MATERIALS [Maximum Price Regulation 236]

### HEATING BOILER CONVERSION PARTS

Under the authority vested in the Price Administrator and the Emergency Price Control Act of 1942 and in accordance with Procedural Regulation No. 1 issued by the Office of Price Administration, Maximum Price Regulation No. 236 is hereby issued.

§ 1346.153. *Geographical applicability.* The provisions of this Maximum Price Regulation No. 236 shall be applicable to the Eastern part of the United States defined herein as the states of: Connecticut, Delaware, Florida, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia, and the District of Columbia. This Maximum Price Regulation No. 236 applies to all sales of conversion parts where delivery or installation is to be made within the above described geographical area although the person making the sale or installation may be located outside the area.

§ 1346.154. *Prohibitions against sales and the installation of conversion parts at higher than maximum prices.* On and after October 14, 1942, regardless of any contract, lease, or other obligation:

(a) No person shall sell or deliver any conversion parts and no person shall supply conversion parts service at a price higher than the maximum price permitted by this Maximum Price Regulation No. 236: *Provided*, That the provisions of this paragraph shall not be applicable to sales and deliveries of conversion parts or the supplying of installation services relating thereto to a purchaser, if prior to October 14, 1942:

(1) Such conversion parts have been received by a carrier, other than a carrier owned or controlled by the seller, for shipment to such purchaser, or

(2) If the seller has delivered the conversion parts to the site designated by the purchaser where the installation is to be made, or

(3) The service of installation has actually begun.

(b) No person in the course of trade or business shall buy or receive any conversion parts or installation services at a price higher than that permitted by this Maximum Price Regulation No. 236: *Provided*,

That if upon the purchase of any conversion parts, the purchaser shall receive from the seller or supplier a written affirmation that to the best of his knowledge, information, and belief, the prices charged do not exceed the maximum price established by this Maximum Price Regulation No. 236; and if in such case the purchaser shall have no knowledge of the maximum price and no cause to doubt the accuracy of the affirmation, the purchaser shall be deemed to have complied with this section.

(c) No person shall agree, offer, solicit, or attempt to do any of the acts prohibited in subparagraphs (a) and (b) of this paragraph.

§ 1346.155. *Maximum prices for the sale and delivery of conversion parts.* (a) The maximum price for the sale and delivery of conversion parts to the ultimate purchaser shall not exceed 18 cents per net pound.

(b) The maximum price for the sale and delivery of conversion parts to retailers shall not exceed  $13\frac{3}{4}$  cents per net pound.

(c) The maximum price f.o.b. manufacturer's foundry for the sale of conversion parts to wholesalers shall not exceed 11 cents per net pound.

§ 1346.156. *Maximum prices for the installation of conversion parts.* The maximum price for the installation of conversion parts shall not be in excess of a sum computed in the following manner:

1. Take the number of hours utilized in making the installation.

2. Multiply the number of hours utilized by the highest hourly price charged by the installer during the month of March, 1942, for the same or similar mechanical service employing the same class of mechanics or, in the event the installer had no such established hourly price for such service or similar service during March, 1942, the maximum hourly price of the nearest competitor who pays the same wage rate and employs the same class of mechanics: *Provided*, That the hourly price charged may be adjusted to reflect actual increases in wage rates paid by the installer becoming effective between March 31, 1942, and July 1, 1942, by adding to such March hourly price charged only the actual hourly increase in the wage rate during such period.

§ 1346.157. *Less than maximum prices.* Lower prices than those set forth under §§ 1346.155 and 1346.156 may be offered, charged, demanded, or paid.

§ 1346.158. *Federal and State taxes.* There may be added to the maximum price established by this Maximum Price Regulation No. 236 the amount of tax levied by any Federal excise tax statute or any State

or municipal sales, gross receipts, gross proceeds, or compensating use tax statute or ordinance, under which the tax is measured by gross proceeds or units of sale, if, but only if, (1) such statute or ordinance requires the vendor to state the tax separately from the purchase price paid by the purchaser, consumer, or user, on the bill, sales check, or evidence of sale, at the time of the transaction; or (2) such statute or ordinance requires such tax to be separately paid by the purchaser, consumer or user with tokens or other media of State or municipal tax payment; or (3) such a statute or ordinance permits the vendor to state such tax separately, and such tax is in fact stated separately, by the vendor. The amount of tax permitted to be added by this paragraph shall in no event exceed that paid by the purchaser, consumer, or user.

§ 1346.161. *Records and reports.* (a) Every person making sales of conversion parts subject to this Maximum Price Regulation No. 236 shall keep for inspection by the Office of Price Administration for so long as the Emergency Price Control Act of 1942 remains in effect complete and accurate records of *each such sale*, showing the date thereof, the name and address of the purchaser, an itemized list of conversion parts sold, and the total net weight of the conversion parts sold.

(b) Every person engaged in the sale or supply of conversion parts installation services shall preserve for inspection by the Office of Price Administration for so long as the Emergency Price Control Act of 1942 remains in effect complete and accurate records of each such sale or supply of installation services showing:

- (1) The name and address of the purchaser of such service or installation;
- (2) The date thereof;
- (3) The actual number of hours employed for completion of the conversion;
- (4) The rate charged the purchaser per hour;
- (5) The type and number of unit converted.

(c) Every person engaged in the sale and supply of conversion parts installation service shall file, on or before November 1, 1942, with the War Price and Rationing Board of the Office of Price Administration having jurisdiction over the area in which the seller is located the following:

- (1) The hourly prices charged for conversion parts installation services during the month of March, 1942;
- (2) The hourly rate of wages paid to employees performing such service or a similar service in March, 1942;
- (3) If there has been any increase in the hourly wage rate between the period of March 31, 1942, and July 1, 1942, the amount thereof and the effective date of such increase;
- (4) If the installer of conversion parts did not

have such established hourly price for such service or a similar service during March, 1942, the maximum hourly price of the nearest competitor who pays the same wage rate and employs the same class of mechanics.

(d) Every person engaged in the sale and supply of conversion parts installation service shall prepare on or before November 1, 1942, to the full extent of all available information and records and thereafter keep posted in a conspicuous manner at his place of business for examination by any person during ordinary business hours a statement showing the highest prices which he may charge for installation services pursuant to the terms of § 1346.156 of this Regulation.

§ 1346.162. *Details required in contract of sale and invoice.* (a) Every seller of conversion parts shall with respect to every sale thereof deliver to the purchaser an invoice which shall contain the name and address of the purchaser and the seller; the date upon which the sale was made; an itemized list of the conversion parts sold; the total net weight of all conversion parts sold; the price per net pound of such conversion parts; and the total price paid.

(b) Every person supplying conversion parts installation service shall furnish with respect to each installation an invoice which shall contain the name and address of the purchaser and the seller; the date on which the installation was made; the total number of hours actually employed to complete the conversion; the rate per hour charged for such service; and the type and number of unit converted.

(c) Every person selling conversion parts and supplying the services necessary for their installation shall furnish to the purchaser an invoice containing all of the information required in paragraphs (a) and (b) of this section. The invoice shall also bear the following statement signed by the seller and shall be true to the knowledge of the seller in all respects:

The total conversion parts used do not exceed the actual requirements for the conversion of the heating boiler from oil firing to the use of solid fuels. The weight of the parts so used and listed on this invoice is accurate and the prices therefor conform with Maximum Price Regulation No. — issued by the Office of Price Administration to the best of my knowledge and belief.

§ 1346.165. *Enforcement.* (b) Persons who have evidence of any violation of this Maximum Price Regulation No. 236 or any price schedule, regulation, or order issued by the Office of Price Administration, or of any acts or practices which constitute such a violation are urged to communicate with the nearest state, district, or regional office of the Office of Price Administration, or its principal office in Washington, D. C.

## Purchase of Frozen Furnace Stocks

WAR Production Board has been processing loans on frozen stocks of oil burner and oil-fired heating equipment and also purchasing such stocks on a contract basis. Purchase prices are said to be liberal, including factory costs, and over-head expense which can be justifiably added to the factory costs. As far as we know right now, gas-fired equipment has not yet been included in any of the purchases, but we understand that consideration is being given to purchase of gas-fired equipment.

Any manufacturer interested in disposing of frozen items or who is desirous of making a loan on such items, should communicate with Alfred Little, Bureau of Finance, War Production Board, Washington, D. C.

On October 20 AMERICAN ARTISAN wrote Mr. Little to ask if oil burners, oil furnaces, gas furnaces frozen in dealers hands will be purchased by WPB arrangements or if loans may be made and if so, how. As this issue goes to press no answer has been received.

# If You Expect to Operate A Truck You Need a "Certificate of War Necessity"

**W**ARM air furnace and sheet metal contractor or after November 15, 1942 may not operate any commercial vehicle (truck) unless the owner possesses a Certificate of War Necessity issued by ODT.

Application for a Certificate of War Necessity should be made in writing to the field office of ODT for the areas in which the home office or principal place of business of the applicant is located. This application is to be made on a special form provided by and obtained from the local ODT office.

A Certificate of War Necessity will be issued by ODT to any applicant who is qualified and who certifies that the operations covered in the application, the mileage or motor fuel requirements, loads and all other requirements are: (1) confined to operations necessary to the war effort or to essential civilian economy; (2) will be so conducted as to assure maximum utilization of the vehicle; (3) shall conserve rubber by means included in the order.

Where the Certificate is issued to the owner of a single truck the Certificate must be carried at all times on the truck. Certificate for a fleet (over 2 trucks) a "fleet unit" shall be carried at all times on each truck included in the fleet.

Certificates are not transferable—they can't be sold with the truck.

## Numerous Records Must Be Kept

On and after November 15, every truck operator must have the tires and spares inspected by an approved inspection agency of ODT every 60 days or every 5,000 miles, and must have had such an inspection made within 60 days or within the last 5,000 miles of the date of application. After receipt of the Certificate each owner must maintain a weekly record of the trucks' operations on forms prescribed by ODT.

Fleet operators must maintain three records: a quarterly report which you will get with your Certificate; a daily record to be used to prove your quarterly report; a weekly record of each truck's operation to show the miles run in the week, gallons of fuel used, number of tires mounted and a column for the initials of the tire inspector.

## Answers to Typical Questions

Certain questions on the certificate may be answered as follows:

Question 1 (Type of Business)—We are private carriers and can be listed as "warm air furnace dealer," "sheet metal contractor," etc.

Question 2 (Principal Use of Truck)—We are "service" operators within the definition of ODT.

Question 3 (Area of Operations)—We are "local" operators.

Question 4 (Nature of Operations)—Our business is "distribution," meaning material carried is picked

up or delivered at points other than where trip begins.

Question 7 (Tires)—Show the number of each tire you have. List mileage of all used tires in proper column and line. Include used or new tires not on wheels or on spares.

Question 9 (Miles Operated)—Means all miles traveled by the truck or the very best estimate you can make.

Question 10 (Call Backs)—For our industry we have no call backs to speak of.

Question 12 (Number of "Trips")—A "trip" is a haul from shop to job and back to shop.

Question 13 (Average Load)—You may give an average weight or if you haul mostly ducts which take up much room and weigh little give "cubic feet of freight." Mostly, however, our trucks should be shown by weight of load.

Question 14 (Most Economical Load)—Not usually the maximum load truck will carry, but perhaps 2/3 or 3/4 of the maximum.

## Manual Gives All Information

All this information, and much more, is included in a booklet—"Instructions for Preparing Application for Certificate of War Necessity," which is supposed to be available at local ODT offices.

After your Application for a Certificate is filed, the information you have given will be reviewed by field representatives of ODT and the mileage you will be permitted to drive and the number of gallons of fuel you will be granted will be shown on the Certificate returned to you. The number of miles you may drive *may not be exceeded*. In addition, permitted mileage by quarters will be shown in case your application shows seasonal ups and downs in mileage. If you need more miles in the third quarter than the second be sure this shows in your application.

Your certificate is also going to show the minimum average load per trip you should adhere to. You may run the truck with a smaller load, but quarter by quarter your loads should show as an average load a load equal to your Certificate's minimum. If you persist in underloading your next inspection is likely to show less gas granted.

All trucks operating in gasoline rationed areas will be given a maximum gallonage of fuel. The gallonage allotted you will entitle you to coupons equal to that amount.

On the basis of the records you maintain, none of the limits can be exceeded. Thus, if your maximum mileage per period is less than the number of miles you should be able to operate with the fuel permitted, you cannot use the gasoline granted. If you cannot maintain the minimum average load indicated you must reduce the unutilized mileage you are operating and will not be able to operate all the mileage authorized.

# Interpretations, Amendments, Easements To Existing Orders

## Higher Oil Burner Service Prices

**T**HREE conditions which an oil burner service company must meet before it may increase its rates over those of last winter have been announced by OPA in an interpretation of Maximum Price Regulation No. 165, as amended:

1. The increase must have been effective *before* April 1, 1942, and work must have been done at the higher rate before that date.

2. The increase must have been a *general* increase applying at once to customers without contracts, and to other customers as rapidly as their contracts expired.

3. After the increase became effective, *all* work must have been billed at the higher rate, except only such work as was done under earlier contracts requiring lower rates.

Most oil burner service companies charge either on an hourly rate basis or at a price set in annual contracts. Many companies raised their hourly rates last winter, and when the services regulation placed a ceiling at the March levels, these higher rates became the ceilings on hourly charges.

The question arose, however, whether a service company in writing contracts for the coming heating season had to renew at the contract prices which were in effect last March but which, written in most instances early in the season, reflected price levels of last summer and fall, or might adjust its new contracts to recognize the higher hourly rates which were in effect last March.

Today's interpretation permits such a company to apply the same percentage increase to its annual contract rates as long as the company meets the three tests laid down.

If, for example, prior to April 1, the service company—or anyone else doing this work—raised its hourly rates from \$2.50 to \$3 an hour, an increase of 20 percent, and if after the increase it did not charge or offer to charge an hourly rate customer less than \$3 and did not negotiate new or renew old contracts or offer to do so at less than a 20 per cent increase, it is considered as having raised its prices generally by 20 percent for all customers. Since the increase in hourly rates is 20 percent, that is the maximum amount it may raise its contracts over last season's prices.

## Amendments to PR 3, 11, 12

**P**RIORITIES Regulations Nos. 3, 11 and 12 (AA September 1942) governing the extension of preference ratings, use of ratings by companies under the Production Requirements Plan, and reratings have been amended in several important respects.

Under Regulation No. 3 as now amended, a more flexible procedure is provided for the extension of

preference ratings to obtain operating supplies by companies *not* under the Production Requirement Plan. Under these amendments, the former restriction which allowed the extension of ratings only for such operating supplies as would be actually consumed in processing production materials to which the same rationings were applied, is removed. The New Regulations provide simply that a person who is not a PRP unit may extend ratings for operating supplies in any month up to 10 percent of the cost of production materials to which the same ratings are extended during the month.

Items for repair of production machinery (but not of building) are included in the definition of operating supplies. The new definition includes materials such as small hand tools which are generally considered operating supplies but which were excluded under the old provisions. The new regulations also permit extension of ratings for operating supplies in cases where the customer provides the materials to be processed.

Under Regulation No. 11 as amended, companies operating under the Production Requirements Plan are given the privilege of extending ratings served on them instead of using the ratings assigned on their PRP certificates to obtain materials which are not included in the Materials List accompanying the PRP application. This change is intended chiefly to allow extension of ratings for obtaining parts and sub-assemblies, since the Materials List is confined chiefly to raw materials.

This privilege of extending ratings provided by the regulation as now amended is, however, confined to materials which would be incorporated in the product, and may not be used for operating supplies.

The privilege of extending ratings instead of using the ratings assigned on a PRP certificate is available to companies operating under the Production Requirements Plan only for the fourth quarter of 1942. A PRP unit wishing to use this alternative procedure must decide to do so not later than the seventh business day after receiving its fourth-quarter PRP certificate. In that case, a specific form of endorsement prescribed by the amendment regulation must be placed under the heading of Section F on the certificate. No notification to the War Production Board is necessary. However, the choice must be made as to all materials other than those contained in the Materials List or none, and once made cannot be changed during the quarter.

Priorities Regulation No. 12 as amended cancels the permission formerly granted PRP units to revise their own "rating pattern" twice a month on the basis of the ratings appearing on their unfilled orders. This change becomes effective for each PRP unit when it receives its PRP certificate for the fourth quarter. Before receiving the certificate the PRP unit may continue to operate under the provisions of Regulation No. 12 before it was amended.

PRP units which have received or may receive high

rated orders which would have allowed them to change their rating pattern under the old procedure may take advantage of the amendment to Regulation No. 11 which permits them to extend ratings for materials not appearing on the Materials List.

The former procedure which allowed PRP units to do their own rerating was adopted as an emergency method in order to speed up the extension from supplier to subsupplier of the new AA ratings which were adopted last June. The bulk of this rerating has now been effected and the permission granted companies to do their own rerating is therefore withdrawn. However, PRP units which elect to extend ratings as permitted by the amendment Regulation No. 11 may use the new procedure not only for old orders which have been rerated, but also for newly received orders.

Another important change confines restrictions on quantities of materials which may be received by a PRP unit to those on the Materials List. Hereafter a PRP unit will not be restricted by its PRP certificate in the quantities of other materials which it may receive. PRP units will, of course, remain subject to the general inventory restrictions of Priorities Regulation No. 1.

In some cases, however, special restrictions will be imposed in the authorizations endorsed on PRP certificates for the fourth quarter. The amended regulations provide that all such specific restrictions must be complied with and they may apply in some cases to materials other than those on the Materials List.

## Latest Amendments to L-63

To make it simpler for distributors to operate under Suppliers' Inventory Limitation Order L-63, that order has been reissued in a form which brings together in one document the various amendments and exemptions which have modified its terms since it first went into effect last April. No further changes were made.

### WAR PRODUCTION BOARD L-63, AMENDED

**TITLE 32—NATIONAL DEFENSE**  
Chapter IX—War Production Board  
Subchapter B—Director General for Operations  
Part 1046—Suppliers  
(Suppliers' Inventory Limitation Order L-63,  
Amended August 13, 1942)

Part 1046 is hereby amended to read as follows and as so amended supersedes all amendments to and exemptions under L-63 heretofore issued by the War Production Board:

**1046.1. Suppliers' Inventory Limitation Order L-63.** (1) "Supplies" means all the supplies listed below: (See AA, August, 1942).

Except that "supplies" shall not be deemed to include any of the materials set forth in List A.

(2) "Supplier" means any person (other than a producer) located in the 48 states or the District of Columbia, whose business consists, in whole or in part, of the sale from stock or inventory of supplies. "Supplier" includes wholesalers, distributors, jobbers, dealers, retailers, branch warehouses of producers and other persons performing a similar function.

(3) "Producer" means any person including any branch, division or section of any enterprise, which manufactures, processes, fabricates, assembles or otherwise physically changes any material.

(4) "Sales" means sales from stock including consigned stocks and excluding direct shipments.

(5) "Seasonal lines" means any line of supplies in which a minimum of 40% of the supplier's total annual sales are made during a period of 90 days, or less.

(6) "Maximum permissible inventory" of supplies means:

(i) In the case of a supplier located in the Eastern or Central War Time zones, an inventory (owned or consigned to him) of supplies of a total dollar value (by physical or book inventory, at the option of the supplier) equal either to

(a) Twice the sales of such supplies, shipped from his inventories, during the second preceding calendar month; or (at the option of the supplier);

(b) Two thirds of the sales of said supplies shipped from his inventories during the three preceding calendar months.

(ii) In the case of a supplier, located in any other time zone, an inventory (owned or consigned to him) of supplies of a total dollar value (by physical or book inventory, at the option of the supplier) equal either to

(a) Three times the sales of such supplies, shipped from his inventories, during the second preceding calendar month; or (at the option of the supplier);

(b) The sales of such supplies, shipped from his inventory, during the three preceding calendar months.

(b) *Limitation of Supplier's Inventories.* (1) Except as provided in paragraph (b) (3), (4), (5), and (6), no supplier shall accept any delivery of supplies from any person which will effect an increase in the inventories of the supplier above his maximum permissible inventory; and

(2) Except as provided in paragraph (b) (3), (4), (5) and (6), no person shall make to any supplier any delivery of supplies which such person knows or has reason to believe will effect an increase in such supplier's inventory of supplies above the supplier's maximum permissible inventory.

(3) The supplier in any time zone shall be permitted to purchase and store an amount of seasonal lines equal to those which he purchased in the peak period of a comparable period of the previous year, but this peak period shall not exceed ninety days.

(4) A supplier may accept delivery of supplies which will increase his stock above the maximum permissible inventory, if such supplier's inventory of supplies is at the time of delivery less than his maximum permissible inventory and the delivery is of the minimum quantity of such supplies that can be commercially procured.

(5) A supplier may accept delivery of specific items of supplies when his stock of all items in the aggregate exceeds, or will by virtue of such acceptance exceed, his maximum permissible inventory, but only to the extent necessary to bring such supplier's inventory of those specific items (owned or consigned to him) up to a total dollar value equal to the sales of such items shipped from such supplier's inventories during the preceding month.

(6) The Director General for Operations may, from time to time, exempt specified suppliers or classes of suppliers from the provisions of this order, subject to such restrictions as the Director General for Operations may impose.

(7) The provisions of this order shall not apply to any supplier:

*(Continued on page 97)*

# On Our Industry's Front

## Blower Filter Units Ceilinged

SAYS National Warm Air Heating and Air Conditioning Ass'n: Office of Price Administration has announced that blower filter units when used as a part of a complete forced warm air unit are subject to maximum price regulation No. 188 (See August AA, page 25). However, when blower filter units are sold separately for use on conversion installations then they are subject to Maximum Price Regulation No. 136. Furthermore, this regulation covers parts of the blower filter unit, as for instance, motors, belts, pulleys, wheels, housings, etc.

## New Steel Warehouse System

To make a reasonable, but limited tonnage of steel products continuously available for emergency purposes, a new system governing distribution of steel products to warehouses will be put into effect November 1, it was announced October 14 by Hiland G. Batcheller, chief of the iron and steel branch.

Producers who normally supply warehouses are being directed to ship definite tonnages of specific products to warehouses each month on rated orders.

These "earmarking" instructions are supplemental to the Steel Production Directives which have been issued by the iron and steel branch for the past 2 months.

Virtually all of the steel products obtained by warehouses under the system to take effect November 1 will flow directly into the war production program or into other essential uses such as mine, agricultural, railroad, or power plant maintenance.

Under Order M-21-b, as amended, warehouses are permitted to sell most steel products only on A-1-a or higher rated orders, except for small percentages sold under repair and maintenance orders such as P-100. Certain other items such as wire, nails, staples, and farm fence may be sold by warehouses for

repair purposes without a preference rating.

The over-all monthly tonnages needed for distribution by warehouses will be determined by the iron and steel branch. The tonnage required then will be divided among producing mills, according to the pattern of orders they have on hand from warehouses. Varying regional requirements as well as the over-all production obligations of each mill also will be taken into consideration.

## Manpower Problems

EMPHASIS placed by the President in his last radio address on manpower stressed the farm labor shortage, but in business and industry also the question of manpower supplies must be settled to give full effectiveness to the war program.

Although manpower control proposals are before Congress, the President did not call for immediate legislation. He did say, however, that if voluntary measures fail, mandatory means will be required. Earlier, both Manpower Chief McNutt and Donald Nelson had told a House Committee that national service legislation begins to appear imperative.

The major objectives in establishing a national manpower policy were given by the President as selecting and training enough men for the armed forces; manning of the armed forces; manning of war industries and farms, discouraging workers from moving from one job to another; training for essential work, and prevention of further labor wastage in non-essential industries.

Among the proposals for manpower control now before Congress is one by Senator Taft, which has attracted wide attention. The Taft bill would consolidate Selective Service and the U. S. Employment Service. It also would provide for regulations to guide local draft boards and would set up a definite priority system under which men would be drafted.

---

JOSEPH F. WILBER, CHIEF

PLUMBING AND HEATING BRANCH, WAR PRODUCTION BOARD  
RAILROAD RETIREMENT BUILDING, WASHINGTON, D.C.

RATHER THAN CONCENTRATE THE MANUFACTURE OF WARM AIR FURNACES IN A FEW PLANTS WE SUGGEST THAT A PLAN SIMILAR TO THAT NOW IN EFFECT BE CONTINUED WHEREBY EACH MANUFACTURER WHO IS PERMITTED TO MAKE HIS OWN REPAIR PARTS ALSO BE ALLOWED TO MAKE A CERTAIN NUMBER OF FURNACES. THIS WOULD MAKE IT EASIER FOR THE MANUFACTURER TO CONTINUE OPERATION AND TAKE ON SUCH WAR WORK AS HIS FACILITIES WOULD PERMIT. HE WOULD IN EFFECT BE ADDING TO THE WAR EFFORT MORE THAN IF HE RELEASED THE LABOR HE NOW EMPLOYES WHICH MOST GENERALLY IS NOT SKILLED BUT SPECIALIZED LABOR. DECISION SHOULD BE MADE SOON SO THAT UNCERTAINTY OF OPERATION FOR NEXT YEAR WILL BE ELIMINATED AND WE WILL KNOW HOW TO PLAN OUR WORK.

SIGNED—THE HENRY FURNACE & FOUNDRY CO.  
H. S. SHARP, VICE PRESIDENT

---

THE above telegram is self explanatory. It was sent as reproduced above on October 30.

President J. E. Peterson of the Sheet Metal Contractors Association of Illinois has taken steps to place the problem of suspending heating service before the Selective Service Board. The letter sent by President Peterson follows:

Selective Service Board,  
Washington, D. C.  
Gentlemen:

Recent announcements indicate men in the second registration with dependents will be drafted for service. That means many of our members, under 45 years of age, would be called upon to give up their business which serves communities throughout the state in the repair and maintenance of residential heating systems.

We wish to inquire if warm air heating contractors will be entitled to deferment because of their essential civilian function?

In most cases, where a business has been established in a community for 15 to 25 years, it would be a severe hardship—practically impossible—to terminate affairs in two weeks. Many jobs in progress extend beyond a two weeks period. Also, heating maintenance contracts cover a year's period. Would additional time be allowed to terminate these affairs?

Would the draftee be compensated for rebates to his customers which would be necessary to terminate a year's heating service agreement?

In the case of an established business, does the draftee incur the loss of selling his business "under the hammer?"

Your answers to the above questions will be of interest to our membership.

Yours very truly,

## Furnace Manufacture Concentration

NATIONAL Warm Air Heating and Air Conditioning Ass'n reports that as of October 15 there has been no definite word from Washington regarding concentration in the furnace industry. On Friday, October 9, a meeting of the Furnace Manufacturer's Committee was called by the Plumbing and Heating Branch of the War Production Board but no definite action was taken or were definite plans presented for the concentration of production of warm air furnaces at this meeting.

Probably a concentration of production order will be issued covering furnace manufacture in the coming weeks. No determination has yet been made by the War Production Board whether manufacture will be confined to small, medium, or large furnace manufacturers. It has been rumored for some time that only cast-iron furnace production will be permitted.

The association reports that the chimney furnace may be the accepted standard for defense housing or any other units which come within the weight limitations of critical material (approximately 300 pounds on a chimney furnace). The 300-pound weight limitations will exclude most, if not all, conventionally designed defense housing coal-fired units.

For a resume of the situation read Arnold Kruckman's report on furnace concentration in September AA, page 22.

## Inventory Control Coming

WAR PRODUCTION board, October 20 notified all wholesalers, retailers and manufacturers that their inventories of finished consumers' goods will be placed under strict control "in the near future."

An order limiting each to "normal inventories" was being drafted and would be promulgated as soon as possible.

Holding that the reporting plan "can not achieve the desired results," WPB said, "WPB will proceed directly to the second step—a program for formal control and enforcement of normal inventories."

Under this plan each merchant will not be permitted to keep in stock any larger ratio of merchandise to his sales in any quarter of the year than he had on hand in the average of the comparable quarters in 1939, 1940, and 1941.

Forms instructing merchants on further details in determining their permissible inventories will be made available as soon as possible.

The purpose of the inventory control is to attempt "more equitable distribution of inventories throughout the country and protect the many merchants who have been complying with previous WPB recommendations relating to the maintenance of normal inventories."

The program is designed to prevent accumulation of goods in the hands of merchants with the biggest buying power.

Inventories are said to be swollen most in the east, and recent official figures showed department store inventories in August were 52 per cent above last year. The order will require reductions by early 1943.

## Help for "Little" Firms

SMALLER War Plants Corporation has about completed its organization and officials say it will be ready soon to act as middleman between war procurement agencies and small business men who have facilities but have not yet obtained a government contract, says Chamber of Commerce of the United States.

With \$150 millions at its disposal, the Corporation may become a valuable asset to little businesses. On the one hand, it has access to facility inventories collected by WPB. On the other, it has men in procurement agencies watching for orders that small concerns could handle.

It will work this way, to state the case hypothetically: a "lookout" man sees an order for 1,000,000 axe handles in the offing. He sends the information to the corporation, which checks its WPB index and finds five concerns in a certain area apparently able to handle the order.

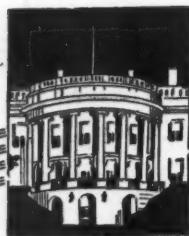
It contacts a field man in a WPB regional office who rechecks with the manufacturer. Then, if all is well, the individual and the government buyer get together. The corporation might finance two more machines for the man. Or, it might help him meet a payroll. Contracts involving \$6 millions already have been let.

## Extra Material Under PRP

FIRMS working under the Production Requirements Plan who have urgent need of material over and above the amounts authorized for fourth-quarter use may apply for additional quantities on Form PD-25F, but are warned that only applications covering material necessary to the war effort or for essential civilian uses can be considered, according to instructions announced October 20 by the War Production Board.

In adjusting requirements for the last three months  
(Continued on page 82)

*Arnold  
Kruckman's*



## *Washington Letter*

# The New Controlled Materials Plan

**B**ROADLY speaking, your industry continues to obtain its materials in the same way you have gotten them since War restrictions were placed upon you. Suppose you manufacture furnaces. You will continue to apply for your metal to make furnaces on the PRP requisition-estimate. You do what you have been doing heretofore. You send your PRP papers to the Plumbing and Heating Branch of WPB, and in due time the Plumbing and Heating Branch transmits them to the Iron and Steel Branch.

As you probably know by now, the Iron and Steel Branch has become one of the Controlled Materials Branches—the outstanding Branch, in fact—under the new Controlled Materials Plan. In its relation to your business, when your business has no direct connection with War implements, the Iron and Steel Branch is part of the Office of Civilian Supply. The OCS has become the WPB agency which stands between industry and the Final Authority which will determine how much material you will receive. The Final Authority is WPB Requirements Committee, and Ferdinand Eberstadt, WPB Vice Chairman on Program Determination, and Chairman of the Requirements Committee.

### Eberstadt Is One Man Control

When the Requirements Committee have pared down the collective needs of all those asking for materials to fit the actual physical supply, they recommend their findings to the WPB Vice Chairman Eberstadt; and Eberstadt has the absolute, final, ultimate, authority to accept or reject these findings. You can more clearly grasp all the implications of the new organization by understanding the extraordinary power of Mr. Eberstadt. He is, in Washington parlance, Mr. Big of American Industry. The stature of his bigness is defined in the following paragraph printed in bold face type in the Book of instructions issued by WPB. Mark well that it is the *only* paragraph printed in black face type in the whole quarto-size, 71-page book. It reads:

"In case of appeal or otherwise on his own initiative the Vice Chairman shall make such changes in the Plan or in Allotments or other actions hereunder as may seem to him appropriate to facilitate and expedite the operation of the Plan."

There are many reasons to feel that this concentration of power in the hands of a capable man is a good thing. By the same reasoning it is logical to feel that the new Controlled Materials Plan is a good thing. Like all things made by man it has flaws.

But unlike most plans that have hitherto come out of this War smelter in America it seems to have definition, clarity, logic and sense.

We think here it is sufficiently detached in its method of operation so that it is at least 80% to 90% immune from funny business. And we are struck by the fact that it is the first plan we have had with a precise and clear schedule, beginning on Nov. 2nd, 1942, and culminating on July 1, 1943. Mr. Eberstadt even prints a clear chronology of the sequence of events which will unfold the plan, and he points to those who will be responsible for each link in the chain of action. Moreover, Mr. Eberstadt is not afraid to say openly that the basis for the plan came to us from Germany via Britain. And he tells us that Labor as well as Industry and Army and Navy and other War Services helped to make the Plan.

Eberstadt came into the picture through the Army and Navy Munitions Board, whose Chairman he still is; but he has had the cool courage to make the Army and Navy Munitions Board just as much and just as little in its relation to the functions of the whole Plan as are the WPB Industry Branches, of which your Plumbing and Heating Branch is one. Eberstadt has nerve, has drive, has self-restraint, has judgment, and has imagination; and with these qualities he has the necessary cold, hard, detached impersonality that should enable him to make the Great and the Near-Great accept his decisions. He appears to be the answer to the prayer so many have silently offered for some one who knows the way and knows how to go.

### Furnace Industry to Remain Under PRP

It is a fact that has not yet been stressed in the welter of discussion about the new Plan that your industry will continue to function much as it has functioned. Obviously, when civilian production gradually tapers off you will be placed under the new restriction they call concentration. The Order, as outlined in the *AMERICAN ARTISAN* for September, is expected any day. There is little doubt at this time the industry by and large will get the break it seeks.

Those who produce for non-War needs will never come under the allocation system completely as it is outlined by Mr. Eberstadt. It does not seem to be intended that they should. The idea appears to be that those who produce a complete unit, or what amounts to a complete unit, for non-War purposes, shall continue to obtain their material by a process virtually the same as that which is represented by PRP. When the PRP system finally disappears, either

next April or next July, or even later, the method that takes its place is expected to be practically the same as PRP.

The chief difference, of course, will be that the industry in all likelihood will be concentrated, and the Controlled Materials Plan will presuppose that the Plumbing and Heating Branch will know exactly how many furnaces are required and how many furnaces each operating unit is expected to make. This will enable the Plumbing and Heating Branch to determine almost exactly how much material each unit should receive. At present the trouble is that neither the manufacturer who applies for material through the PRP system, nor the Plumbing and Heating Branch, know how much material the manufacturer actually should receive. At least the Plumbing and Heating Branch attributes much of the unbalanced distribution to such situation.

The circumstances are different in production for War purposes. The furnace manufacturer who has taken on War work, and who makes parts for ordnance or for planes or tanks, makes only parts. As a manufacturer of parts he naturally will come under the prime contractor who is responsible for the complete tank, for instance; and in such situation the furnace manufacturer naturally becomes a subcontractor in the sense of the new Controlled Materials Plan. Therefore his material for the part he makes for the tank would be part of the total which would be allocated, first, for all tanks to be made within a given period; second, for the tanks to be made by the prime contractor whom he supplies with parts.

#### War Products to Be Under New Plan

In this transaction the furnace manufacturer will come under the allocation system set up by the Controlled Materials Plan. He would get his check-book, or certificate, for his quota of material, and he would be obliged to use it within the scheduled time, or surrender it if he does not use it. If he runs short, that is his bad luck. Now, if the same manufacturer, at the same time makes furnaces, he will apply for the material for the furnaces separately under the PRP system, or whatever they call the system when they remove the PRP label. Mark this: to make his military or War products his material allocation will be passed along from his prime contractor; to make his non-War products his quota of materials will be assigned to him by the Plumbing and Heating Branch via Steel and Iron Branch, and any other WPB units that might be obliged to function on the transaction.

The sheet metal fabricator bears somewhat the same relation to the new picture as has been outlined for the furnace manufacturer. If he does not qualify under PRP, obviously he is now getting his material under PD1X or PD1A. There will be considerable civilian repairs and maintenance that are absolutely unavoidable. The material for this irreducible minimum which must be done by the contractor will be obtained by the same ratings and preferences used in the past, for the present; and apparently it is intended in the future to eliminate much of the red tape and paper work for the contractor who does many smaller civilian jobs.

The new Plan provides that warehouses or wholesalers or similar distributors shall receive quotas for distribution to the contractors in small quantities. It also is probable that some materials may be obtained

by sending the necessary application to the Plumbing and Heating Branch, which in turn certifies it to the Office of Civilian Supply. The method of routing essential materials to non-War manufacturers and contractors is indicated in the outline of the new Plan, but the details have not yet been announced, probably have not yet been completely crystallized.

The complete Rules and Regulations will be promulgated by the new Service Unit of WPB. If you run up against any questions you cannot answer from published discussions you either write to the WPB Controlled Materials Plan Service Unit, Washington, D. C., or you may be able to secure information by going to the Regional WPB Office nearest to you.

Stanley Wood, one of Eberstadt's group, is credited with most of the detail work in formulating the new Plan. General supervision over the operation of the Plan in the Plumbing and Heating Branch has been placed in charge of a new unit known as the Production Control Section, headed by Morgan Johnson, recently in the Heating Section where he had charge of drafting the prospective Furnace Order. Johnson came to WPB from General Electric. David H. Butler resigned as Chief of the Heating Section to go into the Army, and his place has been taken by Lewis Smith who came from New York where he was identified with the C. A. Dunham Company. Joseph F. Wilber, a consulting engineer from Boston, friend of Mr. Eberstadt, is the newly appointed Chief of the Plumbing and Heating Branch. Ronald Allwork continues as Deputy Chief.

Informally the word is passed along that it will be wise for those who work with sheet metal and similar materials to plan as many of their jobs as possible with non-metallic materials. The advice is said to be sound in relation to essential civilian or indirect War work as well as to non-War projects. The diminishing supply of metals is so marked that apparently even Lend-Lease may suffer sharp contraction.

#### Civilians Have Been Pinched Too Hard

In the press conference at which the new Plan was announced it was intimated that American consumers already were suffering a shortage in some items of the civilian economy that was below the supply available in Britain. There seems to be a dawning consciousness here that a Total Global War makes it just as important to keep up the morale of the people behind the lines *at home* as it is to keep up the morale of the people behind the lines in other countries. There seem to be many signs there may be in the near future a decided swing away from the denial of civilian needs.

Total War such as we are now engaged upon is new in the world's experience, and it is beginning to be realized that the principle laid down in the Army and Navy Industrial Mobilization Plan of 1939 is sound, and that it is just as fundamentally necessary to maintain civilian morale, with due regard to military needs, as is the production of shells, tanks and planes. If the people at home grow apathetic and dreary the drive for Victory is retarded. The awareness that there is virtue in preserving a reasonable proportion of the national civil economy is deemed part of the morale, and is considered to have a direct bearing on the manpower problem, which like transportation, also is bound to come under concentrated control.

The Controlled Materials Plan is sincerely designed

(Continued on page 89)

# Priority Questions and Answers

## Gas Ration Rulings

OFFICE of Price Administration has rendered an official ruling on several questions submitted by AMERICAN ARTISAN. The questions and the rulings follow:

Question—What type of rationing card is given the warm air furnace dealer for his truck?

Answer—The owner of the business is entitled to a "T" ration book for the operation of his business trucks. These "T" ration books take the place of the present "S" book in the nation-wide mileage rationing plan. Such ration will be issued to provide mileage authorized by the Certificate of War Necessity (see page 45) granted by the office of Defense Transportation.

Question—Are local salesmen working for this contractor entitled to any additional mileage beyond book A? If so, what?

Answer—Local salesmen working for this contractor may be entitled to additional vocational mileage, in the form of a "B" book, to the extent of 320 miles per month over the "A" book. In order to qualify for this additional mileage, the applicant must form a ride sharing agreement with three or more persons in the pursuit of their occupation, or prove that such arrangement is not possible and that adequate alternate means of transportation are not available.

Question—Service men who do not sell and do not install, but simply service equipment in place are entitled to what mileage book?

Answer—Service men who install and service equipment but do not sell may qualify for a "C" ration book which provides for the necessary mileage driven in the performance of these activities. In order to be eligible for such ration the qualifications of the "B" book must be satisfied.

Question—Where a contractor does a contract beyond his usual home locality does such extra mileage entitle him to additional gas for his truck?

Answer—Contractors doing work beyond their immediate home locality can qualify for additional gasoline necessary for trucks and service cars.

## How to Sell Stokers

Q. Just recently a local field office of the War Production Board ruled that a stoker dealer could not apply P-84 to a sale where a stoker-fired heater was to replace an old and worn-out heating plant in which was installed a gas burner. The reasoning was that the stoker-fired unit called for more critical materials than did the gas burner.

A. It was wrong first to apply to the local field office because the case clearly came under the provisions of P-84 and the dealer could apply the certification himself had he known all that he should have known about the priorities system. And, it was a wrong understanding on the part of the local field office to say that a stoker could not be sold where there had been a gas burner because a greater amount of critical material was involved in the substitution. A pub-

lished copy of a Government interpretation of Order P-84 issued June 1st, signed by J. L. Knowlson, Director of Industrial Operations, and titled—"Interpretation No. 1 of Preference Rating Order P-84" says:

(1) "Installation of a part or parts which do not contain a greater weight of metal than the part or parts replaced is not 'a substitution more extensive than that which is necessary to replace the part or parts that are worn out, damaged or destroyed,' regardless of the fact that such plumbing or heating equipment is of a type or kind different from that replaced. Thus, coal burning equipment may replace oil burning equipment or gas burning equipment."

(2) "Further, where steel equipment is replaced by cast iron equipment, the substitution is not 'more extensive' even though the substituted equipment be heavier than that replaced."

The above establishes in principle that coal-burning equipment can be substituted under P-84 for gas or oil where such equipment is beyond repair and that a stoker, which is largely cast iron equipment, can be substituted for an oil burner even though the total weight is heavier.

## Repair, Conversion, Remodeling

REMODELING to house war workers, repairs to maintain property, and installations to conserve heat and fuel are three types of work for which the FHA has prepared the following questions and answers for the use of property owners who wish to remodel and repair under wartime conditions:

Q. *How much money can be borrowed for repairs and maintenance work?*

A. Loans for such work may be obtained from FHA insured lending institutions in amounts up to \$2,500.

Q. *What sort of repair work is permissible?*

A. Work such as painting, papering, repairs to plumbing and roofing or any similar repairs that are necessary to keep property in good working condition. Luxury repairs or improvements merely to beautify a home are not approved. Repairs also must be of a nature that does not change the structural design of a building.

Q. *What about loans for improvements that will reduce fuel consumption, such as conversion of oil burners to coal units, insulation, storm doors and windows and weatherstripping?*

A. FHA loans may be obtained to finance such conversions and installations. Loans for such purposes have been exempted from the Federal Reserve Board's consumer credit regulations and may run for as long as 3 years.

Q. *Must the owner obtain permission from WPB before undertaking such fuel conservation measures?*

A. No.

Q. *What about loans for remodeling to provide additional living quarters?*

A. FHA loans for this purpose are available in amounts up to \$5,000 for as long as 7 years. They are to be paid off in monthly installments.

*(Continued on page 78)*

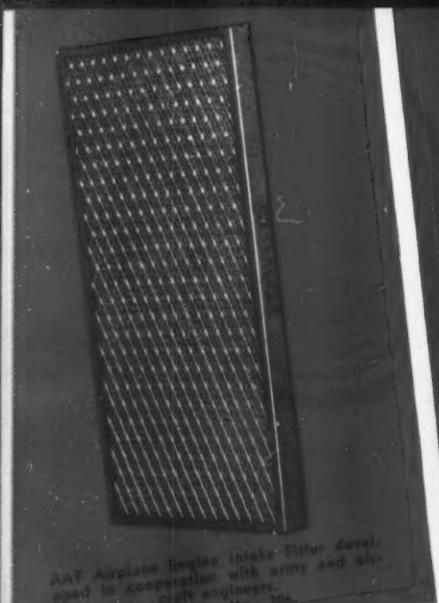
AMERICAN ARTISAN

# RESIDENTIAL AIR CONDITIONING

SECTION



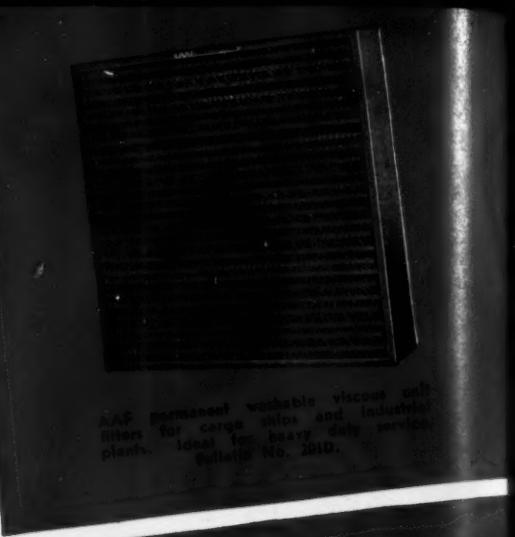
DEVOTED TO HOME AND SMALL COMMERCIAL AIR CONDITIONING



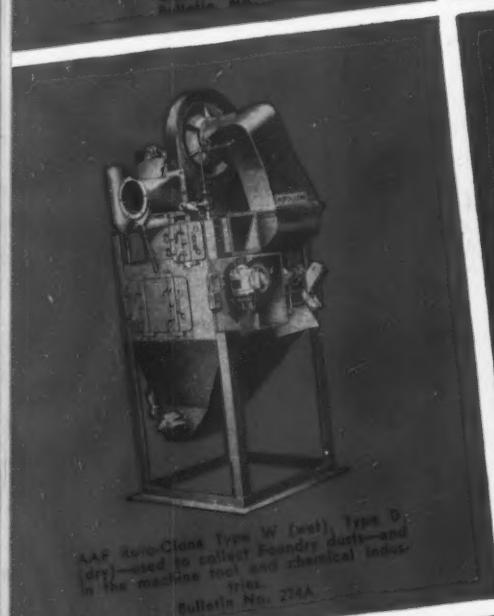
AAF Airplane engine intake filter developed in cooperation with army and aircraft engineers. Bulletin No. 204.



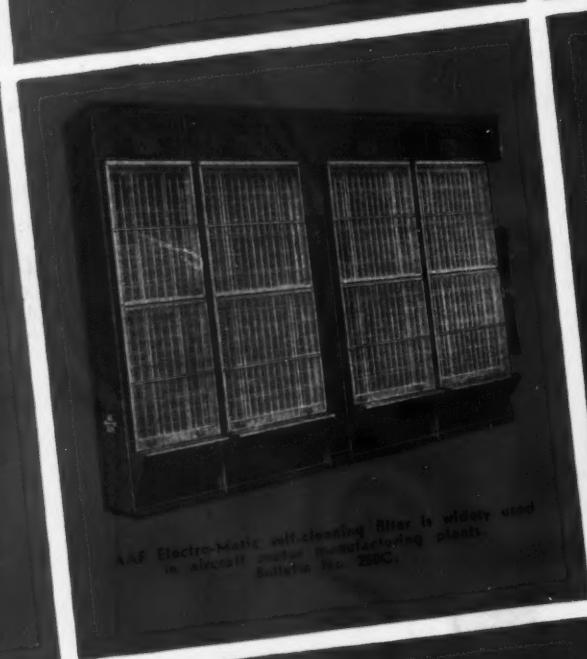
AAF Airmat Dry-Filter extensively used in Ordnance and Powder Plants—approved by National Board of Fire Underwriters. Bulletin No. 230B.



AAF permanent washable viscous oil filters for cargo ships and industrial plants. Ideal for heavy duty service. Bulletin No. 201D.



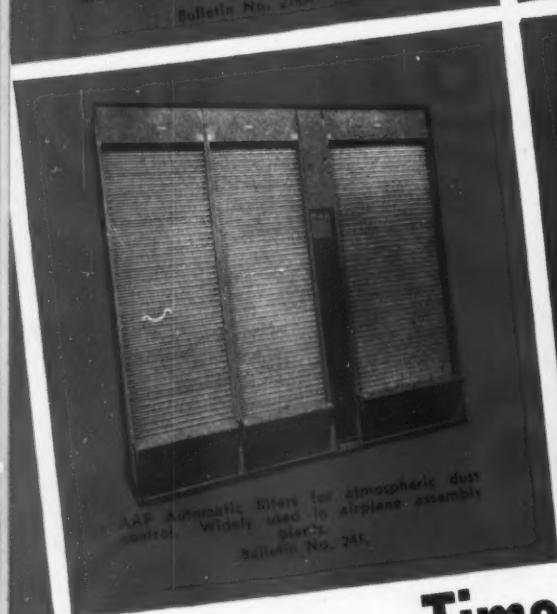
AAF Auto-Clone Type W (wet) Type D (dry)—used to collect Foundry dusts and in the machine tool and chemical industries. Bulletin No. 274A.



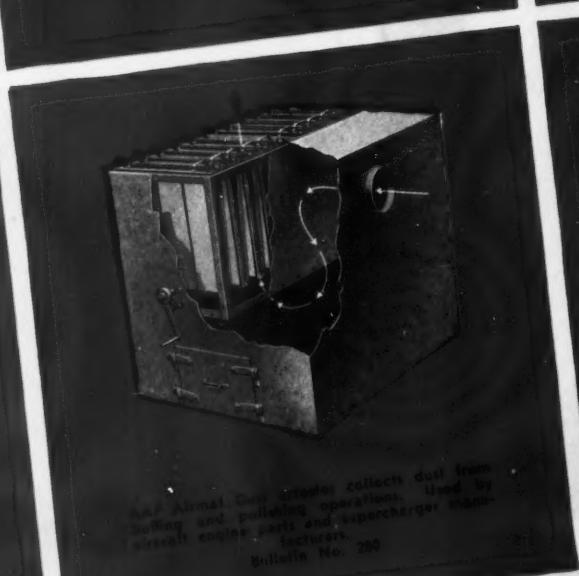
AAF Electro-Matic self-cleaning filter is widely used in aircraft motor manufacturing plants. Bulletin No. 200C.



AAF Cyclone air cleaners are used on gasoline and diesel engines and compressors. Bulletin No. 180C.



AAF Automatic filters for atmospheric dust control. Widely used in airplane assembly plants. Bulletin No. 241.



AAF Airmat Dust Collector collects dust from filing and polishing operations. Used by aircraft engine parts and supercharger manufacturers. Bulletin No. 200.



AAF permanent oil filter for cleaning air supplied to tanks and tanks in army camps and confinement buildings. Bulletin No. 202.

## These Peace Time Necessities Have Gone to War

Clean air is playing a vital role in keeping our war production lines moving at unprecedented speed. Men and women who operate machines must breathe freely of clean wholesome air . . . and those machines must be protected from the ravages of abrasive dust. American Air is proud of the important part it is playing in the war

**AMERICAN AIR FILTER CO., INC.**

production program. AAF filtration and dust control equipment delivered to manufacturing plants directly engaged in making war materials comprises practically 100% of our output. Pictured above are but a few American Air Filter products. Write for descriptive bulletins and engineering data.

353 CENTRAL AVE., LOUISVILLE, K.

AMERICAN  
**AAF**  
AIR FILTERS



## Fake Furnace Fixers First Frighten Then "High-Pressure" Customers

If you are about to have your furnace repaired, check with this Bureau before you sign. Certain furnace fixers,—yes, even some manufacturers with otherwise good records, are adopting trick methods to trap your dollars.

After you sign (if you do) and after your present furnace is torn down and apart, the concern's "inspector" calls. He is "sorry," but your furnace is "beyond repair." It "can't be fixed." "Why, you might have a serious explosion. There's nothing left, I'm afraid, save for you to buy a new furnace. We have a dandy for only \$500. Please sign here," the slicker urges.

If you do, you are often "high-pressured" into buying something not needed. Often, very often, one's furnace could and should have been repaired—not only to save certain critical materials but to stop the faker.

Legitimate furnace dealers, manufacturers and repair men won't resort to such chicanery. They themselves suffer from such competition, help the Bureau expose it.

Many Chicago coal merchants make available to the public, without charge, the expert advice of heating engineers who have no financial interest in the sale of new equipment. Ask for the facts on a given concern by contacting the Chicago Better Business Bureau first.

*Before You Invest—Investigate*

### Chicago Better Business Bureau

7 South Dearborn Street  
Franklin 1808

The appearance of this advertisement in these columns is evidence that this publication subscribes wholeheartedly to the principles of the Better Business Bureau and co-operates with the Bureau in protecting the public. In the event of refusing to accept the copy of firms whose advertising and sales policies are proved by the Bureau to be contrary to public interest.

## We Ought To Fix These "Fixers"

**T**HIS advertisement, published in Chicago papers, calls attention to a situation which has been reported all fall from towns and cities all over America.

What the advertisement does not mention is a practice by the same "fixers" of disclaiming all responsibility for gas hazard if the owner insists on the "fixer" putting the furnace back together. The "fixers" go so far as to demand the owner sign a statement absolving the "fixer" from all responsibility should—"gas kill members of your family."

If the preliminary sales talk on how bad the furnace is has not sold the owner on the need for a new furnace, this last "card" certainly makes the owner stop and consider. We have been told that this "card" gets many an otherwise lost sale for the "fixer."

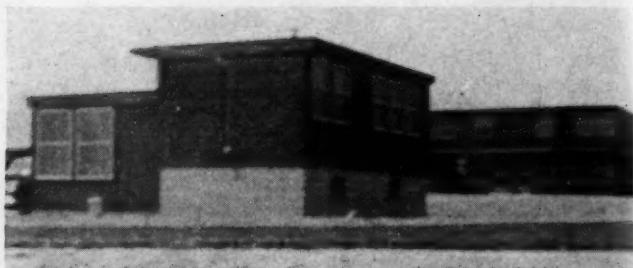
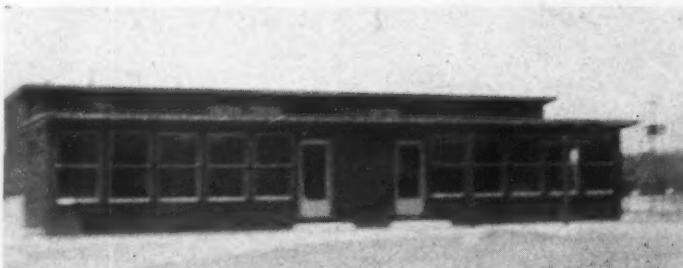
After all, what does an owner know about the

actual condition of his furnace and how can he tell whether or not he is subjecting his family to a danger? He can't know, so rather than run a risk he buys a furnace.

AMERICAN ARTISAN has called attention to this practice to the Compliance Division of the Chicago WPB. We believe others have told their local WPB boards about the "fixer." Our WPB demands that a complaint be filed by some individual who will sign his name and designate exactly where such a sale has been made. We have always thought that the Federal government does its own investigating and keeps the complainant under cover. We must be wrong.

We hear rumors that certain well known "fixers" have been under government investigation for months. But we haven't heard of anything being done. As a matter of fact salesmen for

*(Continued on page 93)*



South Benders (not overly polite) have called these war worker houses "chicken coops" because of the general outside appearance. The intent of the designers is to provide a lot of house and a lot of sunshine for a small purchase price.

## Three Level Defense Houses

### [Defense House Heating]

ONE of the really unusual war plant worker housing projects of the middle west is the Walnut Grove community in South Bend, Indiana, where 250 dwelling units will help alleviate a central housing shortage.

The most unusual feature of the community is the type of house—the photographs do better than words. These are three level houses—basement half below grade, living-dining-kitchen at grade level, bedrooms and bath a half story up.

These are built-on-site houses. The basement occupies half the ground area and is concrete block as shown. To simplify construction, ceiling beams are exposed; there are plywood walls, plywood covered with linoleum floors, nearly flat roofs.

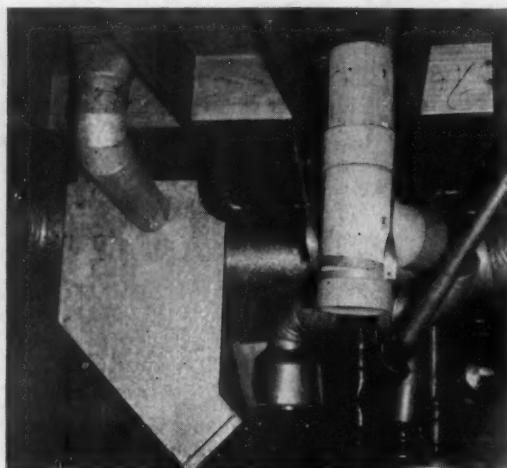
Also unusual, is the owning-renting contract in which the occupant buys a mutual ownership

contract and in paying never buys the house lived in, but buys a "share" in the whole project. Monthly payments are \$32.50 and \$37.50 per month.

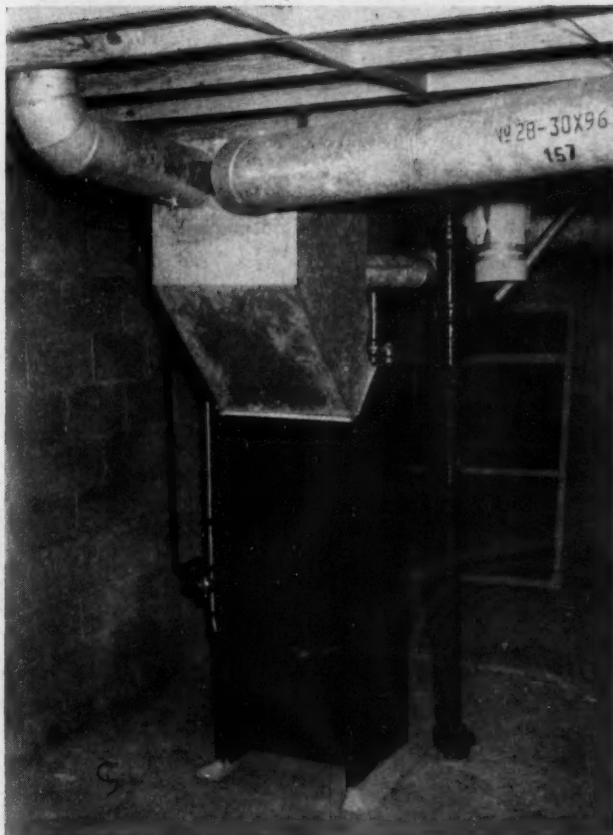
The heating systems in these houses were installed by Modern Air Conditioning Company, Chicago, and are gas-fired, forced warm air Trane furnaces.

The elevation and plans show the general layout of the heating plants. The unusual feature is the absence of any return system, as such. Air to the blower flows down the stairs into the basement and enters the casing around two sides of the bottom where the casing is a few inches off the floor.

Warm air is piped to each room as shown through round galvanized pipes which are spot soldered and screwed at all connections. The



Left—Warm air supply in living room is two-way directional. The flight of stairs leads to the bedroom level. Center—Offset plenum and round warm air pipes of the forced air furnace. Only one stack—to kitchen. Right—The living room register is lower than its supply pipe so this construction was employed. All other registers are above the pipes.



There is no return system; instead cold air flows down the two stairs into the basement and into the blower through the two open ends of the casing as shown here. Photo shows another view of the offset plenum.

warm air pipes start from an offset plenum as photographed to permit the flue to come off the top of the furnace. A damper in each pipe permits balancing.

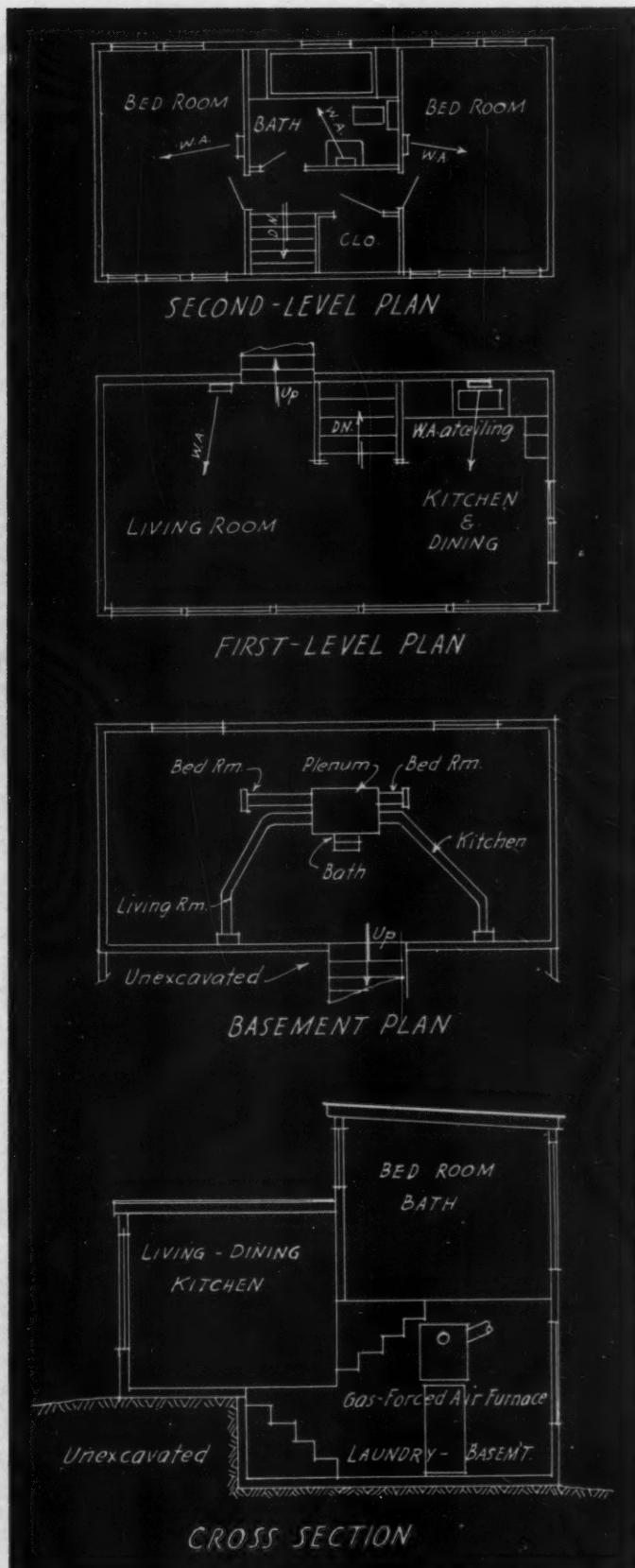
#### Registers and Air Distribution

Registers in each bedroom, the bath and the living room are six inches above the baseboard (see living room register photo) and are two-way directional flow. The register in the kitchen-dining room is a few inches below the ceiling, and is also directional flow.

The living room register is lower than the plenum and as one photograph shows a short stack runs down from the pipe to the register.

No provision for heat is made in the basement which has the laundry and storage space. Since the furnace is very compact, most of the basement area is usable and headroom under the pipes is ample.

The first floor, as the plan shows, is open—no doors, or archways so the two registers on opposite sides of the double, basement stairway can be adjusted to sweep the floor. It should be noted that almost the entire front is glass so a full carry of the warm air to the front wall is essential.



Basement, first and second floor levels of the house. Floors are not one above the other, but offset so a very compact piping system puts one supply in each room. There is no return system—air flows down the stairs. There is only one stack—to the kitchen.



**BAERENKLAU & COMPANY, INC.**  
ESTABLISHED OVER 40 YEARS  
740 JAMAICA AVENUE • BROOKLYN, N. Y. • TEL. APPLEGATE 7-2100

HEATING  
OIL BURNERS  
FUEL OIL  
HOME INSULATION  
DOMESTIC - INDUSTRIAL - COMMERCIAL  
BAERENKLAU OIL BURNERS

May 10, 1941

Dear Friend:

The time of the year has again arrived for the reconditioning of your oil heating equipment. This work should be done as soon after the heating season as possible to prevent rust, scale, and soot - your heating system's worst enemies - from permanently hardening on your boiler surfaces. By not removing them you insulate your heating surfaces from the fire, thus increasing your fuel expense, greatly in excess of the cost of this service.

The ever increasing customer demand for our Summer Service Plan indicates that more and more home owners realize the necessity of having this work done by BAERENKLAU, whose foremost thought is low heating costs for the consumer.

This work is done with high powered special vacuum cleaners. Your entire burner mechanism will be thoroughly cleaned and checked under the direct supervision of an experienced oil burner mechanic.

We again offer you our Comprehensive Summer Service Plan with our assurance that this Service, together with the purchase of BAERENKLAU Uniform Quality Fuel Oil, will result in low heating costs plus healthful, clean, and trouble-free heat. The itemized specification should be retained by you so that our supervisor can check each item when completed.

All that you have to do to take advantage of this offer is to sign and return the enclosed card TODAY. Your work will then be scheduled to coincide with other orders in your locality.

Very truly yours,  
BAERENKLAU & COMPANY, INC.

Albert G. Baerenklau,  
Vice President & Treasurer.

Albert G. Baerenklau

AGB/HF  
Encl.

ONE automatic heat dealer who believes the way to meet curtailment of material and equipment is by offering other services is Baerenklau & Co., Ridgewood, N. Y., now entering the fourth generation of this name in the heating and sheet metal field. Having already sold and installed more than 2,000 oil burners, this contractor now offers definitely related equipment that includes insulation, attic fans, stokers, automatic controls and, most timely, heating plant service.

Of the newer departments greatest success has accompanied their sale of insulation. So closely is this material tied up with automatic oil heating, in fact, that 70 per cent of Baerenklau's heating orders include insulation in the attic. In many cases orders for heating are not accepted unless customers agree to insulate.

Loose Rockwool is found to be the easiest form sold and from case histories has demonstrated excellent fuel savings. Rarely are such savings less than 15 per cent, while 45 per cent fuel reduction has been achieved. This contractor's usual method of application is by first covering rafter spaces with fibrous sheeting then blowing in the wool from their street trucks of which Baerenklau operates two.

# Service, Insulation, Stokers, Control are Baerenklau's "Hedges" Against Recession

By R. C. Nason

More and more attention is being paid to mercantile burners, especially for bakeries and their ovens. The latter receive the attention of sales-manager R. S. Rich, regarded as an expert in this field. Direct-to-the-homeowner, however, is the chief selling aim and to forward this contact Baerenklau embarked in the fuel oil business several years ago. Now they operate seven large trucks that serve 3,000 customers.

Today the firm is pushing a comprehensive mechanical service for oil burners and stokers. Altogether this contractor-dealer services 2,000



The Baerenklau establishment in Ridgewood, is the center for services which keep 3,000 customers of oil burners, fuel oil, heating plants, insulation, cleaning, etc., buying something each year.

On the facing page and at the right are two typical Baerenklau letter sized mailing pieces. One offers the Summer Service and Fall Checkup, the other is the solicitation for summer cleaning. About 2,000 oil burners are serviced. Some 3,000 customers buy fuel oil. Heating plant cleaning attracts other hundreds year after year.

COMPLETE & IMPROVED SPECIFICATIONS  
BAERENKLAU COMPREHENSIVE OIL BURNER SUMMER SERVICE  
UNDER DIRECT SUPERVISION OF CAPABLE SERVICE MECHANICS  
A.B.C. Type "H" Oil Burner

**SUMMER SERVICING**

(1) Complete vacuum cleaning of: flue passages of boiler  
base of chimney

(2) Kalsomining of asbestos boiler covering

(3) Painting of exposed metal boiler parts with asphaltum

(4) Jacketed boilers to be rubbed down with waxed polishing cloth

(5) Recementing of smoke pipe into chimney  
oil strainers

(6) Complete cleaning and checking off: Oil Burner Motor  
constant level device  
set and adjust burner and controls for summer use

(7) Check condition of boiler water

(8) If motor is not used in Summer, it will be placed in a carton for storage in  
a dry place

(9) In addition, we will test the condition of the fuel oil in your tank by the  
TANK-O-SCOPE method, and clean if necessary.

**FALL INSPECTION & START-UP BY SERVICE MAN**

Check, clean and adjust all Oil Burner parts; Protec-torelay; Boiler Control;

Hot Water Control; Thermostats

Air, oil and draft adjustment for efficiency and economy

Check, clean and adjust ignition system

Check all oil piping, valves and electrical connections

**THIS SERVICE WILL BE PERFORMED ON ROUTE SERVICE SCHEDULE**

**PRICES**

COMPLETE summer service and fall inspection . . . . . \$6.50

The above special low price is exclusively for customers who purchase  
their entire 1939-40 fuel oil requirements from BAERENKLAU.

The following price is for non-purchasers of BAERENKLAU FUEL OIL:-

COMPLETE summer service and fall inspection . . . . . \$11.50

All prices apply to boilers having combustion chamber area not over  
4 ft. square. Small additional charge for larger sizes.

**THIS SERVICE PLAN IS AN INVESTMENT YOU CAN'T AFFORD TO MISS**



burners, practically all of them from May 1 to November 1. It is their experience that owners who have summer service require no winter attention. In fact, records prove that winter calls average fewer than 1 per burner, or, per customer, for those who have their equipment gone over in summertime.

Few automatic heating dealers in this area go into mechanical service more fully than does Baerenklau. It takes a force of 50 men and women including mechanics, drivers, inspectors, electricians and installers to handle orders secured via a

special summer service offer. Some of the duties included in the contract are shown in one of the reprints of the company's service offer letter.

To obtain the \$6.50 offer customers have to agree to use the dealer's oil during the year at prices set for the area by a regulating board and which prices, needless to say, are the same as all other dealers hereabouts. If the owner does not wish to patronize the dealer's oil trucks, however, he has to pay slightly extra for the listed service. The price would be \$11.50, regarded as low in this district.

BAERENKLAU & CO., Inc.

Date.....

**OFFER A: BAERENKLAU FUEL OIL USERS ONLY**

I accept your Summer Servicing offer of May 10th, 1941, for \$6.50  
with the understanding that I will purchase my entire 1941-42 Fuel  
Oil requirements from your company, at the retail prices established  
by the Petroleum Industry.

**OFFER B: FOR OTHERS**

I accept your Summer Servicing offer of May 10th, 1941, for \$11.50.

It is understood that this work will be done on route service schedule  
and that I am to be notified one day in advance.

**OFFER SIGNATURE**.....

A OR  B

ADDRESS.....

CHECK ONE PHONE.....

This return card is signed by the owner accepting the fuel oil burner service offer described above. Note higher price for non-oil buying customers.

★ ★  
★ ★  
★ ★  
★ ★  
★ ★  
**HELP U. S. DEFENSE PROGRAM**

**AVOID UNNECESSARY FUEL WASTE  
CAPITOL ROCK WOOL INSULATION**

Saves 20% to 40% heat loss . . . pays for itself.

**8' to 15' COOLER  
IN SUMMER**

Phone today for FREE SURVEY

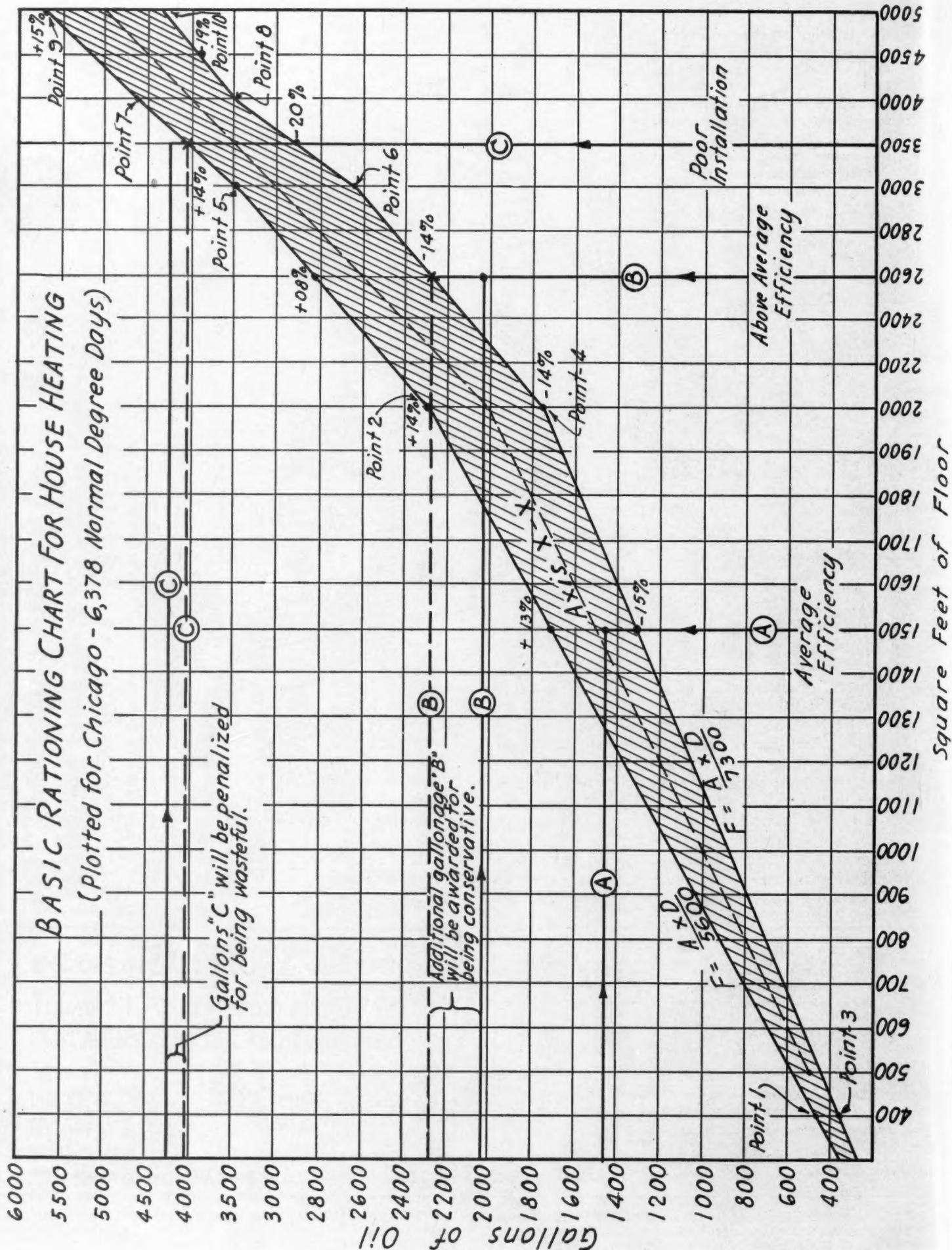
**BUY NOW!**

BEFORE MATERIAL AND  
LABOR COSTS INCREASE

F. H. A. FINANCE TERMS

BAERENKLAU & CO., Inc. 740 Jamaica Ave., Brooklyn APplegate 7-2100

This is a postal card offering a free survey to determine  
if insulation will save the owner money. A return half  
makes the appointment.



# The Fuel Oil Rationing Formula In Charted Form

A fuel oil rationing chart prepared according to the method described here is shown on the facing page. Note this chart is for Chicago only. Readers who expect to tell their customers how much oil they may expect should make a chart for their area. This chart can also be used to show the owner how many heat loss reduction methods he must apply to be comfortable.



**I**N THE October issue, page 32, we published a resume of the fuel oil rationing order, effective October 5. We explained the four zones and five time periods on which the coupons will be issued and gave the formula by which an owner's allotment of fuel oil will be determined.

As readers understand, all domestic fuel oil users, during the coming winter, will be expected to keep their homes at 65 degrees and a basic reduction of 33 1/3 per cent from the gallons of oil used last winter will be granted. But for domestic users there may not be a straight 33 1/3 per cent reduction. Instead the formula published in October will be applied by local rationing boards to establish precisely how much oil the owner will get. The purpose of the formula is to penalize wasteful users by reducing the wasteful user's quantity of oil more than a 33 1/3 reduction and award owners who have efficient installations by giving the efficient owner more than 66 2/3 of the oil he used last winter.

This is accomplished, as explained, by the formula which sets a maximum and minimum range of gallonage. If the owner's gallonage falls *above* the range he takes a reduction greater than 33 1/3 per cent. If the user's gallonage falls *below* the range he gets more than 66 2/3 of the oil gallonage used last winter.

## How to Make Your Own Chart

It will be wasteful of time for every heating man to work out the formula for every owner who asks—"how much oil will I get?" So the range established by the formulas can be charted as shown. This chart shown was prepared for Chicago and vicinity where a normal heating season is 6,378 degree days. Table A (next page) shows normal degree days for several cities and the actual degree days of last winter. Readers should, then, prepare a chart for the reader's area.

This is the way to prepare a chart for your area. Take a piece of ruled paper as shown. Along the bottom place square feet of floor space in 100 square feet increments up to 2000 square feet. This will accommodate small houses. From 2000 to 3000 make the increments in 200 square

foot increases. From 3000 to 5000 make the increments in 500 square feet. This end of the chart is for the medium two story and large houses.

Up the left side place gallons of oil. From 400 to 3000 make the increments in 200 gallon increases. This covers gallonage for small houses. From 3000 to 6000 make the increments in 500 gallon increases. This is for the large house.

To establish the range of the formulas, plot the lines at 400 and 2000 square feet. Start at 400 square feet. To work the formula take the normal degree days for your city. For example, Chicago normal is 6,378. Then from Table A get last winter's actual degree days. For Chicago this was 5,547. So last winter was mild and since the formula is based on normal degree days we must correct the owner's figure of oil bought last winter (remember each owner must furnish his actual last year's gallonage to the rationing board). To correct the gallonage divide the normal (6,378) by the actual (5,547) and we get  $6378 \div 5547 = 1.15$ .

Note in Table A that in every city except Portland, Maine, last winter was mild and there were fewer degree days actual than normal. This means that in every city except Portland, Maine the owners actual purchased gallonage of last year will be *increased* by a certain percentage. For Chicago, as explained above, the increase is 15 per cent. The percent will vary from town to town.

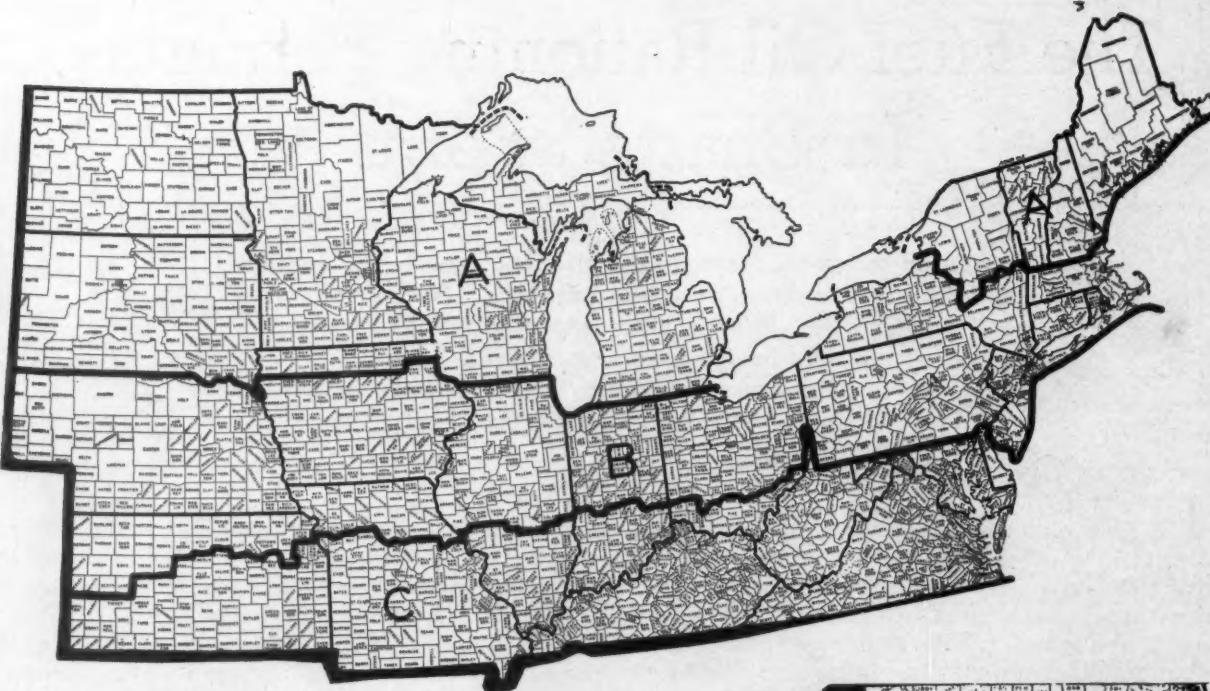
With the gallonage corrected to normal we are ready to plot the top and bottom lines of the formula range. First we will establish the range from 400 square feet to 2000 square feet where the square foot increments are 100 square feet each. To plot the upper line we need one point at 400 square feet. We obtain the point by applying the formula:

$$F = \frac{\text{area (400) x DD (6378)}}{\text{Factor (5600)}}$$

$$2551200$$

We have  $F = \frac{400 \times 6378}{5600} = 455$  gallons (Point 1 on chart).

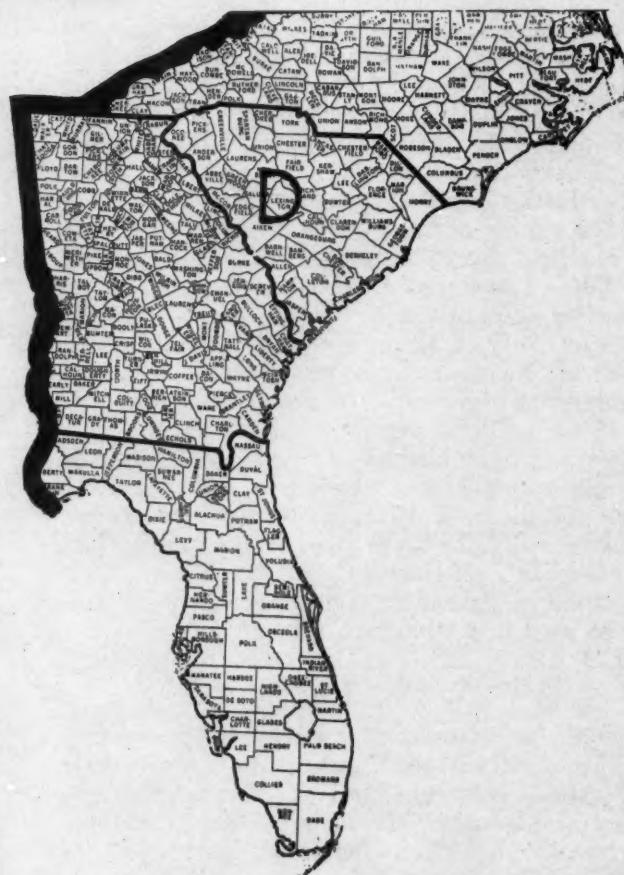
Then we plot an upper line point at 2000 square



The four areas into which the oil heating area is shown above. Where your city falls on a dividing line get a ruling from your local oil coordinator.

TABLE A

	1941-42 Degree Days	Normal Degree Days
<b>Zone A</b>		
Detroit .....	5808	6454
Grand Rapids .....	5815	6642
Milwaukee .....	6539	6995
Minneapolis .....	6847	7902
Portland, Me. ....	7073	7054
Sault St. Marie .....	8332	9284
<b>Zone B</b>		
Albany .....	6377	6516
Boston .....	5388	5981
Buffalo .....	6286	6782
Chicago .....	5547	6378
Cleveland .....	5572	6174
Des Moines .....	5739	6336
Hartford, Conn. ....	5662	6380
Indianapolis .....	4795	5471
New York .....	4708	5290
Omaha .....	5794	6229
Providence .....	5304	6014
<b>Zone C</b>		
Baltimore .....	3802	4590
Cincinnati .....	4515	4702
Kansas City .....	4468	5302
Philadelphia .....	4296	4873
Pittsburgh .....	5227	5235
St. Louis .....	4168	4658
Washington .....	3900	4583
<b>Zone D</b>		
Atlanta .....	2880	2891



feet. The formula is  $F = \frac{2000 \times 6378}{5600}$

$$F = \frac{12756000}{5600} = 2278 \text{ (Point 2 on chart)}$$

Now we need the minimum range line of the 400-2000 square feet house. We proceed as before, but the formula is:

$$F = \frac{400 \text{ (area)} \times 6378 \text{ (DD)}}{7300}$$

$$F = \frac{2551200}{7300} = 349 \text{ gallons (Point 3 on chart)}$$

For the 2000 square feet end of the line we have:

$$F = \frac{2000 \times 6378}{7300}$$

$$F = \frac{12756000}{7300} = 1746 \text{ (Point 4 on chart)}$$

We change square feet increments between 2000 to 3000 square feet so our upper and lower range lines change direction as shown. We have the two points for the 2000 square feet so we need the upper and lower points at 3000 square feet. For the upper point our formula is:

$$F = \frac{3000 \times 6378}{5600} = 3416 \text{ gal. (Point 5 on chart)}$$

For the lower point we have:

$$F = \frac{3000 \times 6378}{7300} = \frac{19134000}{7300} = 2621 \text{ gal.}$$

This is Point 6 on the chart.

#### Straight Cone Chart

A simpler chart would have all straight lines forming a cone, but this would make a chart very large. So our chart increases increments as houses get larger, thus breaking our range lines.

Between 3000 square feet and 5000 square feet we pass out of the gallon increments of 200 gallons so our range lines assume the shape shown and we have a break at the 4000 square feet line where our range passes out of the 200 gallon axis into the 500 gallon axis. If you don't understand this just make the chart and you will be all right.

We need an upper and a lower point at 4000 square feet (because of the way the chart is laid out). To get the upper range point we have—

$$F = \frac{4000 \times 6378}{5600}$$

$$F = \frac{25512000}{5600} = 4555 \text{ gal. (Point 6 on chart)}$$

For the lower range point we have—

$$F = \frac{4000 \times 6378}{7300} = 3494 \text{ (Point 8 on chart)}$$

Again, because of the way the chart is plotted, we have a break in our line from 4000 square feet to 5000 square feet and to get the range lines we need two last points (Points 9 and 10).

To get Point 9 we have—

$$F = \frac{5000 \times 6378}{5600} = 5694$$

For the last needed point (Point 10) our formula is—

$$F = \frac{5000 \times 6378}{7300} = 4368.$$

Remember you have to plot your own chart for each degree day area. Use the procedure outlined and the formulas and in place of the 6378 degree days we show use the *normal* degree days for your area.

#### How to Use Your Chart

Now that the range is plotted—how do we use the chart. Suppose you are calling on Mrs. Smith and she wants to know how much oil she may expect to get this coming winter. You can give her the answer by using this chart. To explain here are three examples.

Example—House A—Floor area equals 1500 square feet. Used last winter 1,900 gallons of fuel oil. Normal degrees from Table A—6,378. Last winter degree days (from Table A)—5,547. Adjusting last year's gallonage to normal (1,900 x 1.15) equals 2,185 gallons. Reducing this by 33 1/3% as the basic cut gives 1,457 gallons the owner may expect this winter. Turning to the chart find the 1,500 sq. ft. line and trace up to intersection of 1,457 gallon line we find the intersection lies within the range established by the formulas so owner A will get the 1,457 gallons.

Example—House B—Floor area equals 2600 square feet. Used last winter, 2,650 gallons of fuel oil. Normal degree days from Table A—6,378. Last winter degree days (from Table A) —5,547. Adjusting last year's gallonage to normal (2,650 x 1.15) equals 3,047 gallons. Reducing this one third as the basic cut gives 2,032 gallons the owner may be given this winter. Turning to the chart find the 2,600 sq. ft. line and move up to the intersection of the 2,032 gallon line we find the intersection falls *below* the range established by the formulas which indicates that this owner has an efficient installation and house so he may not get a full 33 1/3% reduction of his gallonage but will, instead, get the lower range of the formula which shows 2,280 gallons the owner will be given. This is indicated by dotted line (B) on chart.

Example—House C—Floor area of this large house is 3,500 square feet. Used last winter —5,500 gallons. Normal degree days from Table A—6,378. Adjusting last winter's gallonage to normal (5,500 x 1.15) equals 6,325 gallons. Reducing this by 33 1/3 per cent as the basic cut gives





4,217 gallons. Plotting this on the chart we move up on the 3,500 sq. ft. line to the intersection with the 4,217 gallon line and find the intersection outside the range established by the formulas. More important, the intersection lies *above* the range indicating that this is a wasteful installation and the owner will, accordingly be cut more than 33½ per cent. He will be given only the maximum permitted by the range which is 4,075 gallons as shown by dotted line (C).

This is not a drastic additional cut, but illustrates how the inefficient system owner will be penalized beyond the 33½ per cent basic cut. It is easily conceivable that some owners will have such an inefficient system that their cut will be fifty per cent. These owners will surely require all the advice, service and cooperation we can give them.

#### Exceptions

There are several additional features in the conservation order. We will list these as follows—

- 1—Babies—Children under four years of age entitle the owner to additional gallons of oil. As of this date this additional gallonage is 125 gallons in Zone A; 100 gallons in Zone B; 75 gallons in Zone C; 50 gallons in Zone D. This is not gallons per child but *total* gallons for the house. One four year old gives the owner just as much additional oil as three four year olds.
- 2—Old persons, Infirm persons, Sick persons—A physician must certify that more heat is needed because of these occupants and must specify how high a temperature is needed. How high a temperature is needed will determine the extra gallons given the household.
- 3—Hospitals, Sanitariums, etc.—May obtain supplemental gallons; the amount to be determined by special investigation.
- 4—Inaccessible Houses—Houses distant from oil supply may use coupons of more than one ration period, but must obtain special permission from the rationing board to do so.
- 5—Can't Afford Betterment—Any householder who can prove to the rationing board that he cannot afford to insulate or buy storm sash or service his burner may ask for additional fuel. (We suspect this owner will not get very favorable hearing).
- 6—Industrial, Commercial—Commercial and industrial users of oil will get a flat 33½ per cent reduction. No formula will be used. Restaurants may ask for additional gallons in order that sanitation (dishwashing, cleaning, etc.) may be maintained. This is special appeal.

7—Apartments, Institutions—These users will get a straight 33½ per cent reduction adjusted to normal degree days. Further—these owners will be denied oil if they can convert their heating plants to burn coal—“at reasonable cost.” “Reasonable cost” is defined in the order as 5 cents per gallon of oil burned in normal consumption. Example, apartment uses 8000 gallons of oil. If conversion can be made at a cost of \$400 oil will be denied and the owner must convert if possible.

#### Domestic Hot Water

Oil used to heat domestic hot water is *not included* in the amount of oil calculated for comfort heating in the formula. Instead, the owner is to be given 15 gallons of oil per month plus 5 gallons a month for each occupant. Example, five in family = 15 gallons initial plus 5 gallons for each of five persons gives 15 plus 25 gallons or 40 gallons total oil for domestic hot water.

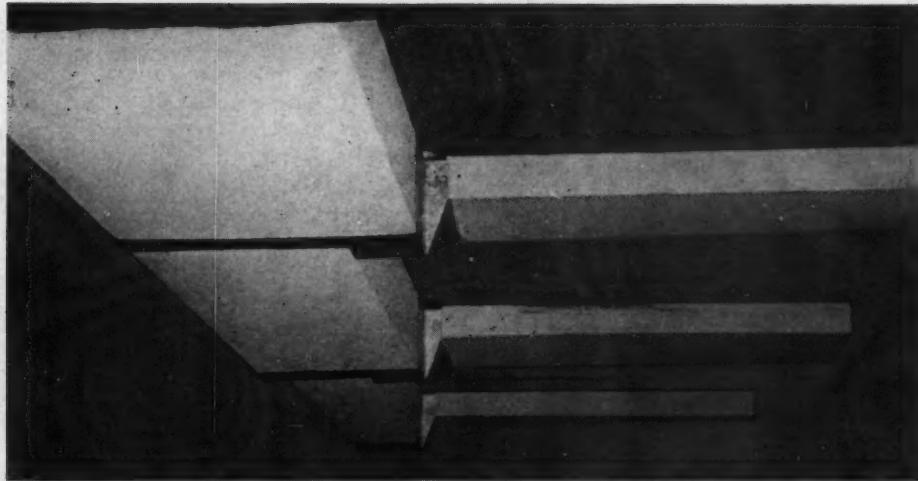
#### Gallons to Square Feet

On the calculating chart for Chicago note Axis X-X. Note that this line just about follows the center point between the maximum and minimum range for any given square feet of floor area. Most important, note that for Chicago's normal 6378 degree days a good installation should use one gallon of oil for every square foot of floor area per heating season. Thus a 1000 square foot house should use 1000 gallons; a 2000 square foot house should use about 2000 gallons.

When you get your chart constructed, plot a center line through the range zone and you will find that a certain number of gallons per square foot works out pretty uniformly. A chart for Minneapolis, for example, works out about 1.8 gallons per each square foot.

This relationship between number of square feet and gallons can be used to determine a percentage range which eliminates the use of the chart. To explain, note on our chart that at 1500 square feet the upper line is 13 per cent above the 1 gallon to 1 square foot axis and the lower line is 15 per cent below the 1 gallon to 1 square foot axis. Therefore if the owner gives you his square feet of floor you can add 13 per cent to get the upper range and subtract 15 per cent to get the lower range. If the owner's  $\frac{2}{3}$ 's of last year's fuel falls between these two gallonages he is within the range.

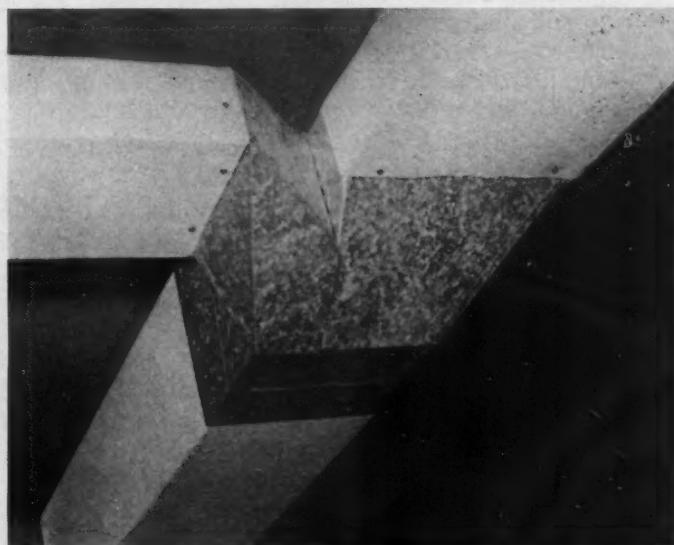
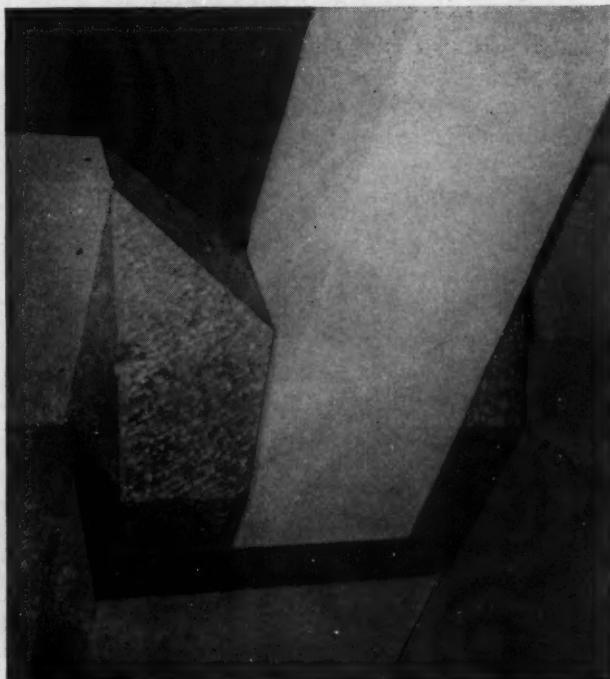
This percentage will not be identical all along the lines. Note our percentages at the 1500, 2000, 2600, 3500, 5000 square foot lines. There is variation, but not too bad. Your chart may work out more uniformly than ours; if you can develop these percentages you can still figure gallonage without the formula and without a chart.



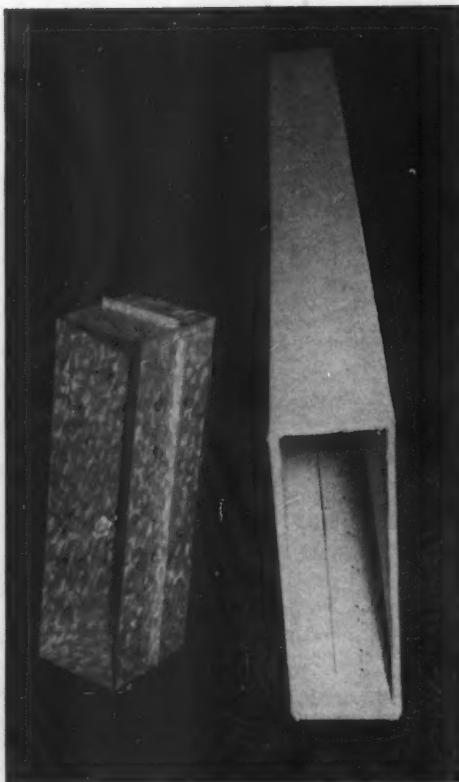
Sample duct made of Sall Mountain prefabricated duct sections and recommended metal fittings. Each size of duct shown is a standard packaged item.

## Ducts and Fittings of SUBSTITUTE MATERIALS [Part 2] *[Sall Mountain Board and Metal Fittings]*

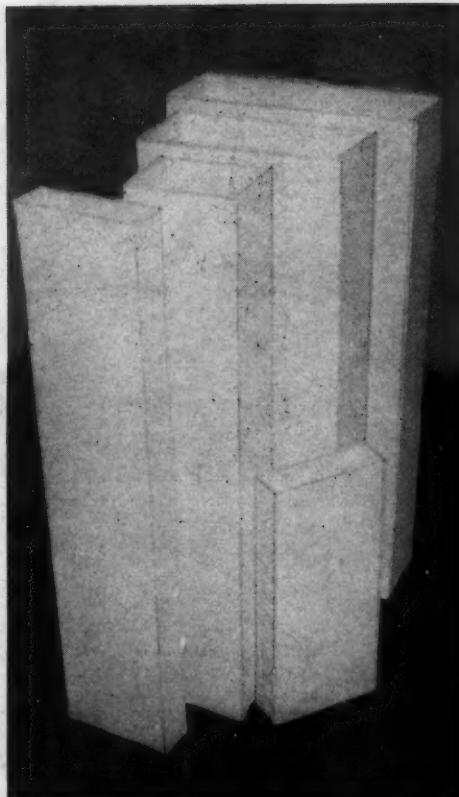
IN the May, 1942, issue we published a study of acceptable practice and design for substitute materials used to form small residential system ducts. Since that time, under the impetus of increasing scarcities, a number of additional ideas and some new materials have been tried out and found acceptable. This report covers some of these later ideas.



Left—double and above—single, metal branch takeoff of design suggested by Sall Mountain company. Note metal slips into the prefabricated main and branch and is metal screwed to obtain rigidity.



Sall Mountain main and branch or stack lengths are complete sections packed collapsed in the shipping carton. On removal, the length is opened out as shown in these two photographs. Right photo shows several standard sizes. The metal fitting is a connector to join lengths together.



Sections are packaged flat but pre-creased so that the section can be opened up and cut to length on the job. Sizes range from main supply widths and depths to stack dimensions.

In all fittings, the metal connector slips inside the duct section and the metal and board are held together by metal screws.

To use this material, the duct system is first laid out on the plan and the necessary sizes calculated from the stack or branch size. Main duct sizes are determined by the area of the branches added together back to the furnace. If possible, the duct system should be laid out so that branches run at right angles to the main in order that elbows, turns and other metal fittings are kept at a minimum. If this plan is followed, the metal required will not exceed 10 per cent of the total material

needed.

The takeoff fittings are designed so that the main runs across joists and the branches between joists—the turn-up is incorporated in the takeoff itself at the main. To hold the duct in place, metal hangers screwed to the metal fittings and nailed to the joists require only scrap material.

This Sall-Mo packaged duct is a prefabricated system in that the system is laid out and sized from the data sheet and then the properly sized sections are selected from a catalog; the number of lengths is determined; and the proper fittings are made up. On the job the contractor cuts the section to length, puts the pieces together and hangs. Carefully laid out from plan or from job measurements, there need be no waste and a minimum of cutting and fitting.

## *Klomparens Lock Joint—Needs No Metal*

IN Washington, D. C., suburbs Roy Klomparens of Klomp Air Systems, Arlington, Va., has installed several residential systems using substitute material for furnace casings as well as for ducts. In the first job, metal connectors similar to the connectors shown with the Superior duct were used with metal screws and adhesive, but the number of screws and labor time required to spread the adhesive and let it dry made the cost prohibitive.

So Mr. Klomparens determined to find a cheaper and quicker method of joining substitute board panels. The result is the wood or fibercrete moulding shown in the accompanying drawing. The

moulding developed has been patented and four firms are now set up to produce wood moulding at a rate of 300,000 linear feet per day.

The drawing shows the four types of joints—90 deg. joint, 45 deg. joint, flat extension joint, three-way joint—which permit sufficient flexibility to make square pipe, plenums, casings, take-offs, turns and elbows. The drawings also show how these mouldings are used to connect duct panels together.

Note that the board is inserted in the groove and then a  $1\frac{1}{8}$ -inch wood pin, 6 inches long, is driven into the  $\frac{1}{8}$ -inch key way. This fastens

the board under the pin and makes a quick but firm anchor.

Mr. Klomparens suggests that the best plan is to send to the mill the dimensions of the board panels and have the mill cut the panel to size and run the key way. All that must be done in the field is assemble panels and mouldings. A saw, drill, screw driver and hammer are all the tools required.

The duct assembled is supported by running a screw through the flat extension pieces into the floor joists or ceiling.

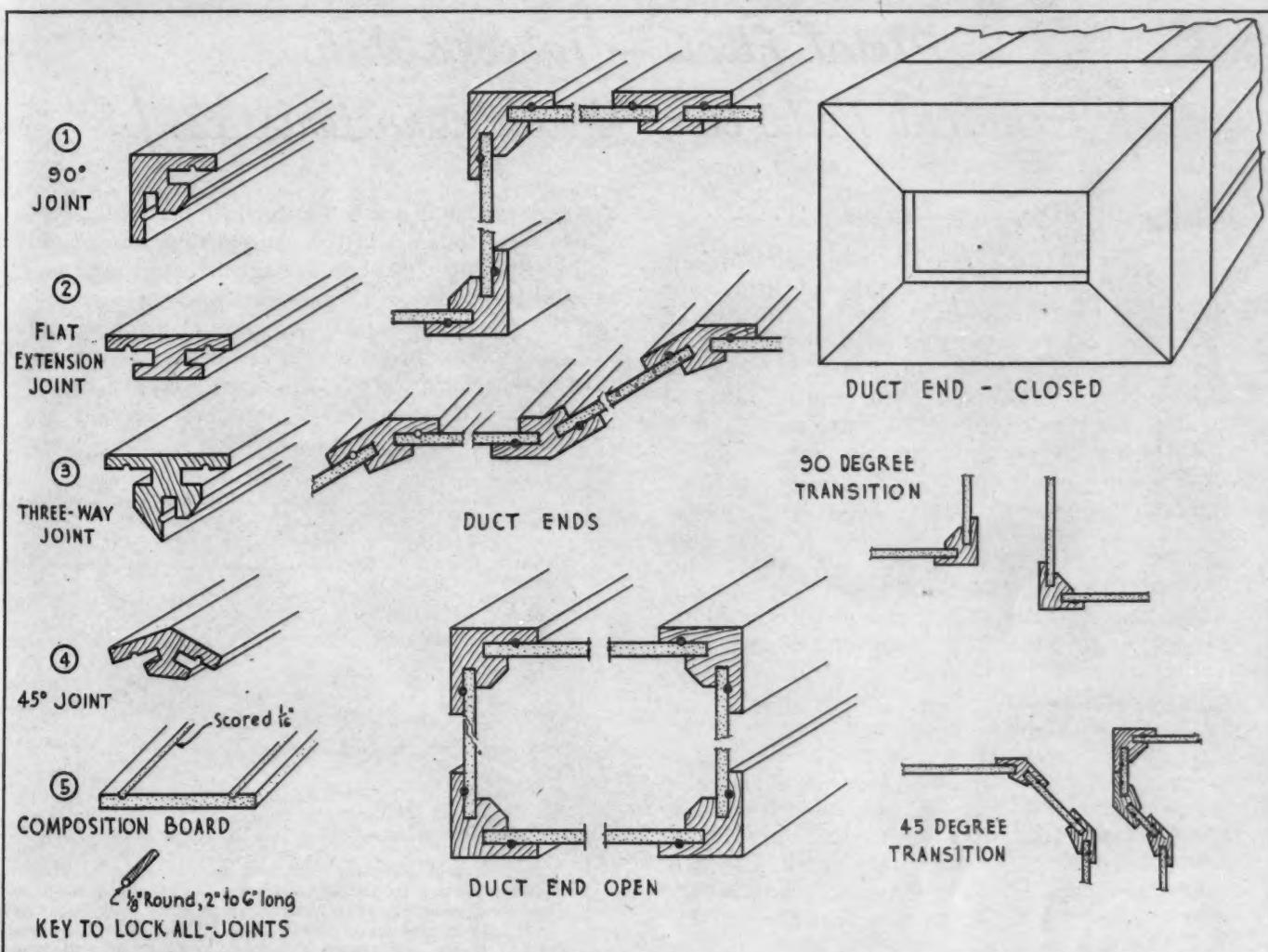
A natural question in this use of wood mouldings is—how about approval from a fire hazard standpoint. This was anticipated by Mr. Klomparens and, because government housing agencies are interested in this idea, the moulding has been tested by the National Bureau of Standards. For the tests the wood moulding was fire-proofed by two types of impregnators as follows: One sample was impregnated with special material by the Protekol Corp., a second was treated with a Chromated zinc chloride.

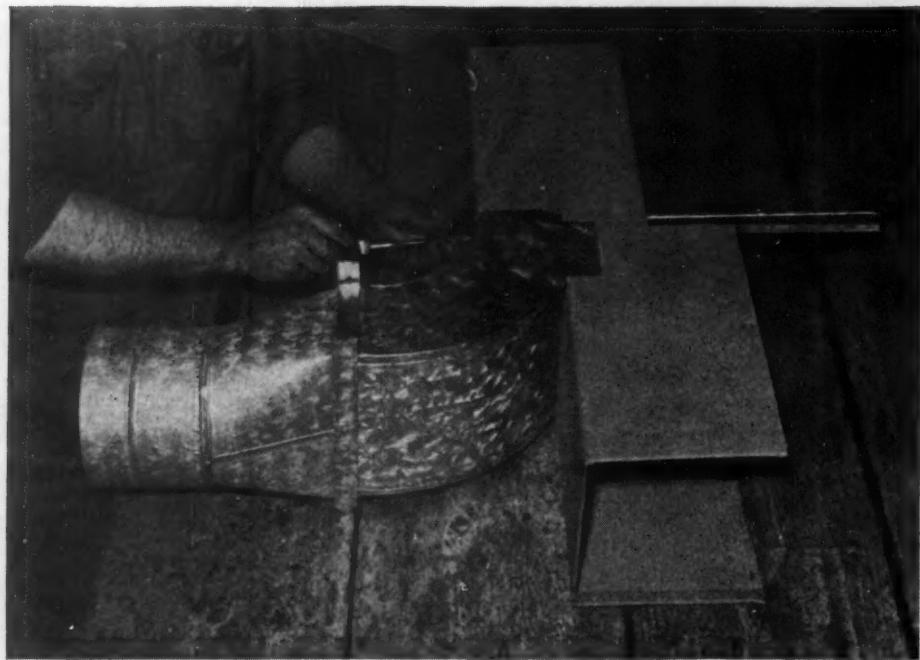
The Bureau of Standards subjected test samples of the moulding to the fire tube and flame tunnel tests prescribed by American Society for Testing Materials which rates the specimen from a hazard standpoint where the specimen is a part of the duct. Only one specimen, given the Pro-

texol treatment, suffered a loss in weight more than 30 per cent, but only one specimen Chromate treated resisted fire.

The Bureau says in effect—"Wood 'lock-joint' members of the type tested if given flame-proofing treatment equal in effectiveness to Lot 3 of the samples tested do not present any serious fire hazard when used with cement asbestos boards to form hot air ducts for heating systems. Although wood treated in this manner and degree will not transmit fire, it will be deteriorated in strength in locations subjected to continuously or repeated high temperatures, particularly from radiation from glowing metal surfaces. It is suggested that parts be shielded from such radiation for a distance up to 6 feet from such equipment with  $\frac{1}{8}$ -inch cement asbestos board or asbestos paper weighing not less than 30 pounds per square foot. To be most effective the flame-proofing treatment should be applied after the members have been cut to approximately finished dimensions."

These mouldings are made from several varieties of wood and tests in the field show that 2-inch long pins in each 4-foot length of duct form a section which can not be pulled apart and is adequately rigid. Size is not a factor, the system being just as satisfactory for large industrial systems as for small residential ducts.





The Lukaszek-Superior metal elbow takeoff is cut and formed with bends and ears as shown above. Metal screws and washers hold the metal ears to the ARA sheet. (Grant Wilson, Inc.). Note standard metal connector used to join sections or used as longitudinal corner. This takeoff provides air flow characteristics satisfying Technical Code recommendations.

## *Metal Elbow - Takeoff With [Technical Code Air Flow Characteristics]*

### **Metal Elbow and Takeoff**

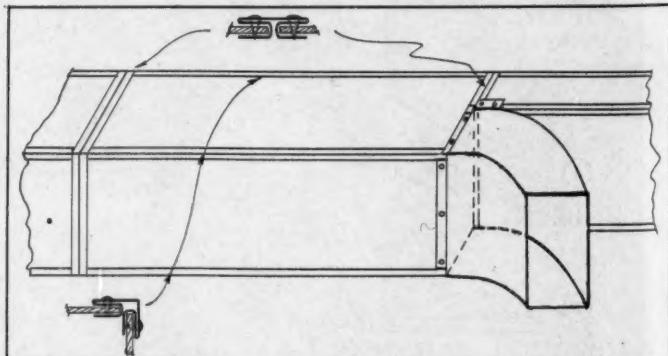
**S**UPERIOR Safety Furnace Pipe Company of Detroit has studied several types of fittings and ducts using substitute materials. As a result of their study, the company believes that substitute materials can be used for ducts and branches, but that for the sake of appearance, reduced cost, and to insure a rigid, substantial duct, metal should be used for the connections; also for all elbows and takeoffs and fittings.

This use of metal in takeoffs, elbows and fittings, believes E. B. Root, engineer for Superior, should not require more than 10 per cent by weight of the metal required to build an all-metal duct system. Thus 10 per cent metal and 90 per cent substitute material would represent a very substantial metal saving, yet the resulting system will be satisfactory.

A number of ideas were studied by Superior; the ideas shown in the photographs seeming to have the best possibilities. This particular substitute material duct has a metal takeoff designed by Joe Lukaszek, owner of Mackay Sheet Metal Company, Detroit, several years ago and used in all-metal ducts. The takeoff meets Technical Code specifications for air flow characteristics.

Using this Lukaszek takeoff in metal and the

straight sections made of substitute materials, the sample duct shown in the photographs was made up in the Superior shop to demonstrate the practicability of this combination. Straight sections of the duct may be made as panels held together by longitudinal metal corner connectors or a substitute sheet may be bent to form a corner without metal if the section is not too large. Probably 8 inches deep by 30 inches wide is about the



The Lukaszek-Superior duct and takeoff may be built as substitute material panels joined by the standard connector bent 90 degrees for longitudinal seams and flat with pockets back to back for cross connections. Takeoff throat should be 3 in. wide. This drawing makes the throat look too wide.



C. E. Spencer is the Superior shop superintendent who posed for these photographs. Left—Photo 1—Grant Wilson ARA sheet can be bent in the brake and will hold its shape. Center—Photo 2—The standard connector is used bent 90 degrees for longitudinal corners. A bar is placed in one pocket for the brake to squeeze on in bending. Right—Photo 3—Bent metal pocket used to join panels of Sal-Mo board; board is slipped into pocket and a couple of metal screws run through to hold board and corner together.



limit of the no-metal corner construction. Another variation can be one sheet as top and side and another sheet as bottom and side, requiring two metal corners. In small ducts, three corners can be bent board without metal and the fourth a metal corner. The trouble with this is the tendency to spring out of shape. Long sections would be impracticable without metal corners.

#### All-Purpose Connector

The longitudinal metal corner is a double pocket cleat as shown in the sketch. This type of corner was adopted because it can be used flat for cross connections where the pockets are back to back or a bar can be slipped into one pocket and the connector bent 90 degrees in the brake (squeeze the

pocket with the bar) whereupon this connector becomes a longitudinal connector to hold top and side, etc. (See sketch.) For small ducts 26-gauge metal is stiff enough.

The important feature of this metal and board duct system is the elbow takeoff which starts a branch out of the main. This elbow takeoff has the proper elbow radii, has low entrance loss, takes out the proper amount of air without splitter—and takes no more metal than a poorly designed elbow.

Also important, this elbow takeoff serves many purposes. Once standardized for size, the pattern becomes the key to the complete duct construction. For instance, with branches all the same size one pattern and one elbow takes care of all takeoffs. A similar pattern with a  $3\frac{1}{4}$  or  $3\frac{1}{2}$ -inch depth



Left—Photo 4—Top and bottom of elbow is scribed from a standard pattern. Ears may be on pattern or cut after scribing. ARA sheet duct partially fabricated in background. Center—Photo 5—Inside curve of cheeks are flanged to fit into Pittsburgh of top and bottom. Right—Photo 6—A Pittsburgh is run on both edges of the top and bottom pieces. Then a scrap of metal is put into the Pittsburghs and the piece is rolled to required elbow radius.



Left—Photo 7—Pieces of the elbow are assembled by hammering flanges into Pittsburghs. Center—Photo 10—Showing turned back lip on outside metal cheek into which the side of the ARA sheet (Grant Wilson, Inc.) main is slipped to get an air tight joint. Right—Photo 8—In the Superior shop, Pittsburghs are closed with this Simplate CP 000 pneumatic hammer. Compressor is portable for moving around the shop.

serves for round branch to wall stack. The cheeks of the pattern can be used with any width top and bottom faces to make a metal turn where the main or branch changes direction.

The dimensions which maintain Code proportions are the width and depth of the throat opening and the ratio of radius to width.

In order to demonstrate the practicability of this combination, photographs were taken of a sample piece of duct and an elbow takeoff constructed in the Superior shop. The connector was made up in full brake lengths and then the proper length was cut off for either cross or longitudinal strips. To show that substitute board can be bent 90 degrees and made into a duct requiring only one longitudinal metal corner, photographs 4 and 9 illustrate the assembly with the main preceding the takeoff wider by 3 inches than the main which continues. This construction naturally requires a main built in short sections, each section being the length between takeoffs.

From the standard elbow takeoff pattern, photographs 4, 5, 6, 7 and 8 show steps in layout, cutting, forming and assembly. The "tabs" lap over the top and bottom and side of the preceding and continuing mains through which metal screws are run to hold the substitute board to the metal. Also to obtain an air-tight connection, the outside face of the takeoff is bent back as shown in photograph 10 and the sketch to squeeze the board between the bent back tab and the outside face. No screws are needed here.

This duct design is especially suited to a house with a basement where one main supply runs across the basement with branches coming off at intervals. To obtain a minimum metal system the branches can be substitute material—round or square (see May ARTISAN)—requiring one metal takeoff and one metal elbow from branch to stack or register box. The same general application can be used for supply through a first floor hall.

Round pipe branches are possible. Substitute boards have been improved so that rolling the board in the rolls does not ridge the surface as formerly—so the cylinder looks smooth. Best practice is probably a metal connector for the longitudinal seam. This connector can be the back to back double pocket used for the square pipe. Certainly a metal connector should be used if the branch may be subjected to abuse or is exposed.

If the round pipe is concealed, an air tight seam can be made by lapping the edges of the cylinder an inch or so and metal screwing the lap together at 6 or 8-inch centers. An asbestos strip pasted over the lap makes a good job.

There are developments now under way to perfect a plastic connector to be used to join edges of substitute board—these plastic connectors may be on the market by the end of the year.

Square branch pipes are made similar to main supplies and, since branches are usually small, one metal connector longitudinally is sufficient.

E. B. Root, in reading proof on this article, points out that this construction was strictly for test and that in Detroit substitute material has not been approved for warm air—only for returns. In other areas, however, warm air ducts of substitute materials have been approved under special order. With metal becoming scarcer, substitute materials seemingly will be approved, if contractors will ask permission from their local FHA office.

AMERICAN ARTISAN

# SHEET METAL

SECTION



DEVOTED TO SHEET METAL CONTRACTING AND FABRICATING



Superior Sheets are being supplied in large quantities for life-boats and other war products.



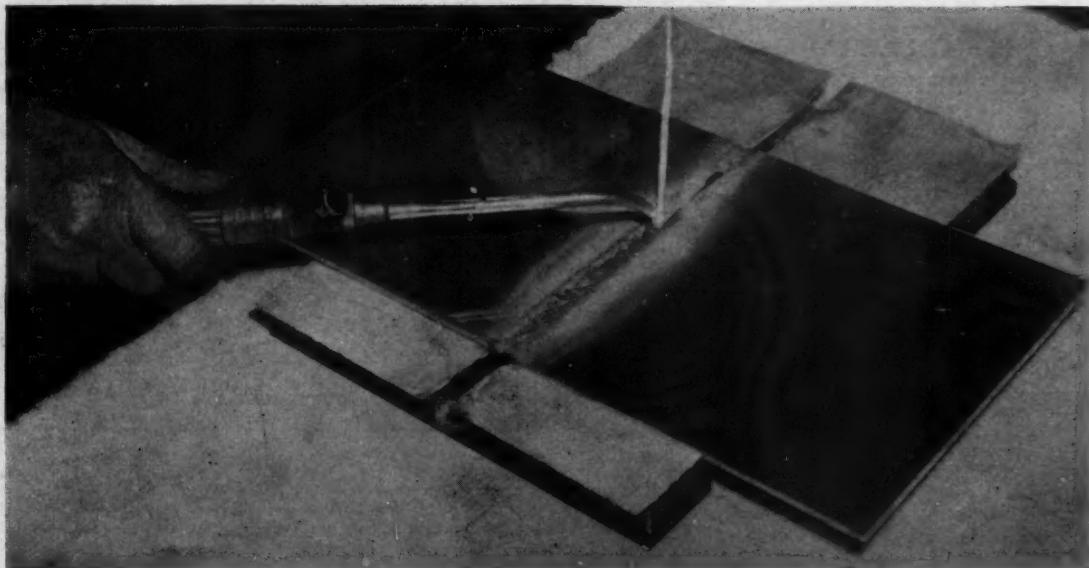
## *Good Workmanship* **SAVES STEEL!**

One responsibility now facing all Americans is the conservation of steel. To sheet metal workers, good workmanship now has a more important meaning than ever. It means getting the most out of every sheet . . . making each sheet go farther and cutting waste to the absolute minimum. SUPERIOR sheets are made to high standards of uniformity and workability. They help you *save steel*.

THE SUPERIOR SHEET STEEL COMPANY, CANTON, OHIO  
(Division of Continental Steel Corp.)



**SUPERIOR**  
CONTINENTAL STEEL CORPORATION



Aluminum welding is not difficult if a few fundamental principles are clearly understood

## Instruction Outline For Welding Aluminum Sheet—16 to 26 Gauge

*[Reprinted from Oxy-Acetylene Tips]*

ON the following pages are sketches and photographs illustrating step-by-step instructions for welding aluminum sheet up to 16 gauge. These instructions are intended as a guide for the operator, to familiarize him with the various factors involved.

While aluminum is not difficult to weld, the metal has a number of physical characteristics which make welding techniques considerably different from those for steel. Consider first that aluminum has a low melting point and does not give any indication by change in color that the metal is approaching welding heat. Secondly, that the metal collapses suddenly when the melting point is reached; and third, that the thermal conductivity of aluminum is high. This means that when heat is applied to the metal at any point, it is carried away and dispersed rapidly throughout the body of the metal. All of these factors affect the rate of fusion, and it is suggested that the operator spend some time merely observing the behavior of aluminum as it melts under the action of the blowpipe.

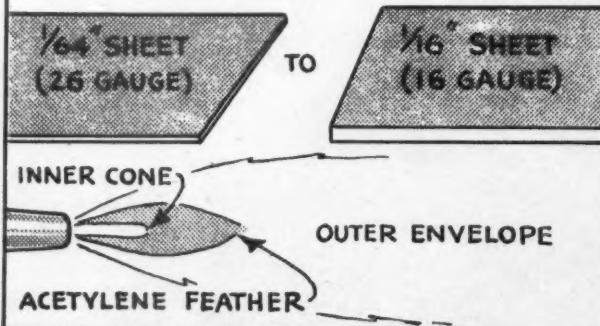
A fourth consideration is that molten aluminum oxidizes rapidly, forming a heavy, thick, high-

melting-point skin on the surface of the metal. This is the reason for cleaning the metal thoroughly, using a good flux, and using an excess acetylene flame. Finally, aluminum is hot-short, that is, it is weak when hot. Therefore, aluminum parts must be adequately supported during welding.

Aluminum and its alloys are made in a number of grades. Those which can be satisfactorily welded are commercially designated as follows: (1) high purity; (2) the common grades, 2S and 3S; (3) the high-strength, heat-treated alloys, 51S and 53S; and (4) the casting grades.

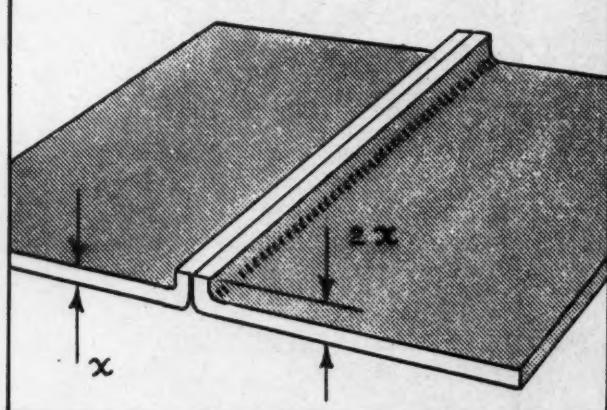
The instructions on the following pages apply to the grades known as 2S (commercially pure aluminum) and 3S (low-manganese aluminum alloy). These grades come in several conditions of cold-work hardness as follows: O (annealed);  $\frac{1}{4}H$  (quarter-hard);  $\frac{1}{2}H$  (half-hard);  $\frac{3}{4}H$  (three-quarters-hard); and H (hard). Welding any of the H tempers will anneal the metal, and the resulting joint should be considered as having the same strength as soft-temper metal, or as in the O condition.

TIP SIZE - OXWELD NO. 4, OR PUROX AND PREST-O-WELD NO. 3.



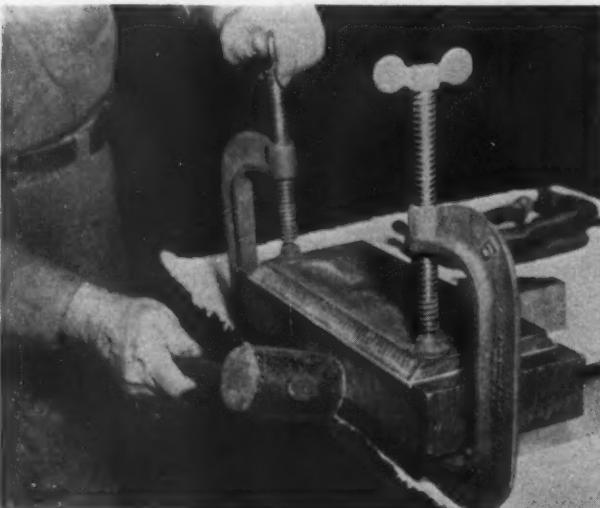
1

For welding aluminum, an excess acetylene flame should always be used, with the acetylene feather about twice the length of the inner cone



2

A flange-type joint should be used for thicknesses up to 16-gauge. The flange should be about the same height as the sheet thickness



3

Edges can be flanged in a brake, or by clamping the plate securely and hammering down the projecting edge with a wooden mallet



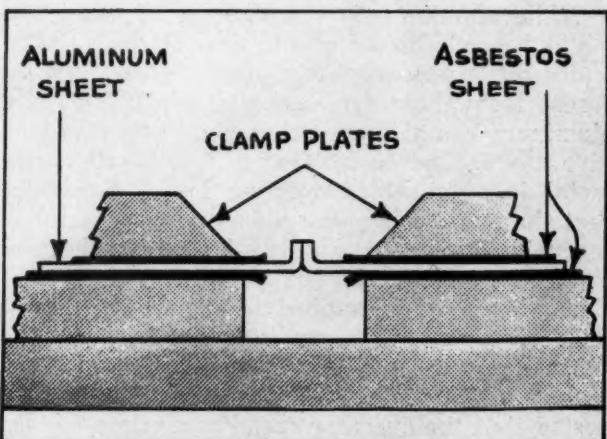
4

Edges should be cleaned thoroughly with steel wool or a wire brush and water until a dull-white, non-reflecting surface is obtained



5

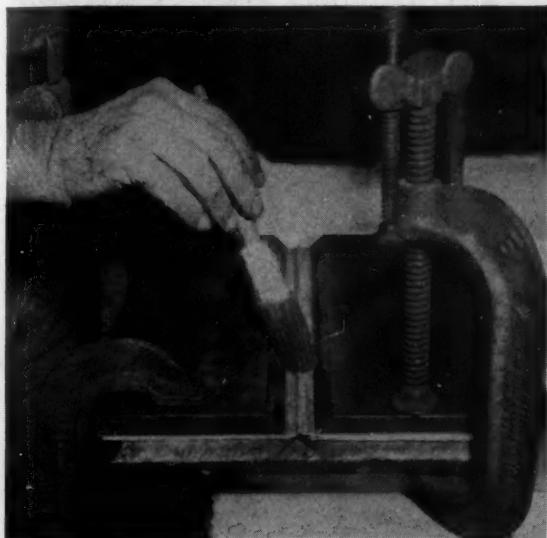
Oxweld aluminum flux, which has been mixed with water to a free-flowing consistency, should be painted on the cleaned edges with a brush



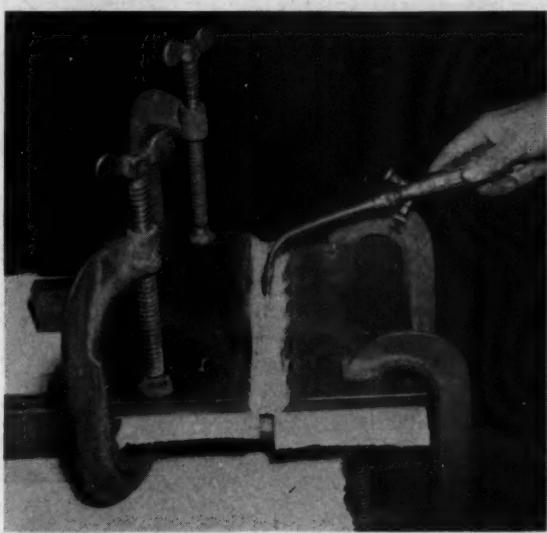
6

This sketch shows details of a simple jig which can be used for practice purposes. Some form of jigging is almost always used for welding aluminum

# Welding Methods For 26-Gauge To 16-Gauge Aluminum Sheets



**Left—7**  
After the sheets are placed in the jig, the flanges should be again painted with flux. Flux is essential to remove the oxide which forms on the weld surface



**Left—8**  
Without a rod being used, the metal in the flange is melted down to form the weld metal. The blowpipe should be held at an angle of about 30 deg.



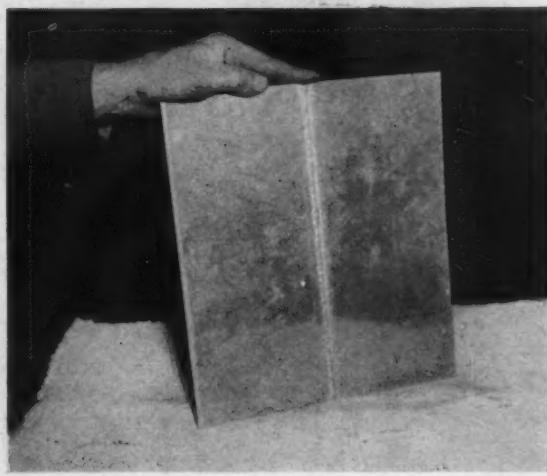
**Right—8**  
Without a rod being used, the metal in the flange is melted down to form the weld metal. The blowpipe should be held at an angle of about 30 deg.



**Left—9**  
The inner cone should be held about  $\frac{1}{8}$  in. from the metal, and both flanges heated evenly. The weld should proceed rapidly and be completed in one pass



**Right—9**  
The inner cone should be held about  $\frac{1}{8}$  in. from the metal, and both flanges heated evenly. The weld should proceed rapidly and be completed in one pass



**Left—11**  
With a little practice, it is possible to produce regular ripple welds of good appearance. Observe that the sheets have not buckled

**Right—12**  
This view of the underside of the weld shows that good penetration has been obtained along the entire length of the seam

# Avoid These Mistakes When Welding Aluminum

*[Any Light Gauge]*



Left—13

This metal has not been cleaned, and the operator, in trying to melt the oxide skin which forms on the surface, has burned holes in the base metal



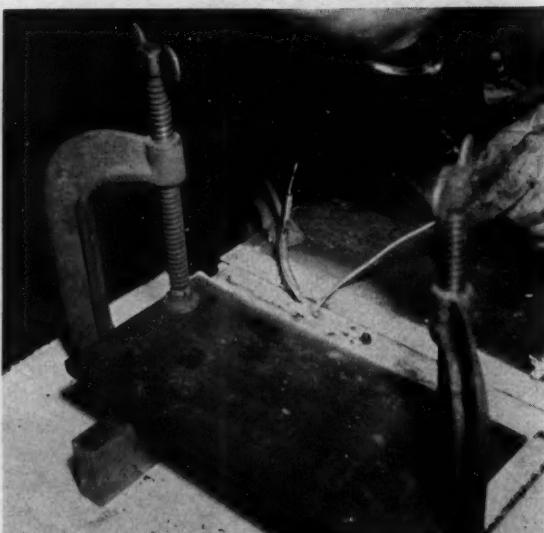
Right—14

A "forced" flame (too much heat) was used here, resulting in holes in the base metal and lack of penetration—in fact, complete lack of control



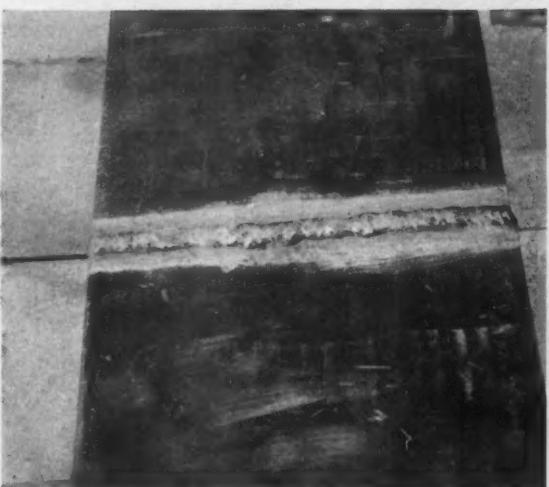
Left—15

Here is what happens when a neutral flame is used. The high-melting-point oxides cause the metal to ball up, resulting in poor penetration



Right—16

The operator here is welding too rapidly. The weld will have a fairly good appearance from the top, but there will be lack of fusion



Left—17

The operator has directed too much heat on the rod and not enough on the base metal. As a result the weld metal balls up



Right—18

This view of the underside of the weld illustrates incomplete penetration. The operator has failed to "dig in" sufficiently with the blowpipe

# Fabricating War Products

## [War Plane Nose, Cowling, Ring]

By Ernest E. Zideck

Sheet Metal Consulting Engineer

ALTHOUGH the bulk of aircraft parts sub-contracting has been taken over by former automobile and accessories manufacturers, many stove and similar producers have lately entered the field, securing contracts for light stainless steel or aluminum sub-assemblies which in their entirety are fabricated by means at hand or are self-constructed. There are so many large and small sheet and allied metal parts needed in the modern craft that the plane manufacturers confine themselves to the construction of the skeletons largely, obtaining the engine cowling, the wings, the connecting fuselage parts, the ailerons, the rudder, the interior smaller items such as ducts, tanks, pilot seats and numerous other units from outside sources.

It would appear, from the scarcity of materials and the restriction on metal fabrication that there should be an abundance of plants and shops capable of taking up the work of sub-contracting for the aircraft builders. However, because of the bugaboo spread about "aircraft" building, which was hailed as something entirely different and apart from other sheet metal work, the "aircrafters" have made plane construction seem to be impossible for the usual sheet metal fabricator. It can be stated here without reservation that, if the plane in all its particulars is designed right, the builders need only to follow the design and produce the parts, governed, as in any other construction work, by the detailed specifications deduced from the general design. We know how to deal with margins of .005 plus or minus in many other constructions, and we need only to follow the fabricating principles of close fit applying to such constructions to produce satisfactorily in the aircraft field. The army and navy inspection is not much stricter in aircraft than it is in other production, in ammunition containers for instance, or in any other product made of sheet and allied metal for uses by the armed forces and required to be inspected by them.

### All Customary Work

The fabrication of the bulk of plane accessories is restricted to common processes employed in other constructions, namely: (a) the layout of

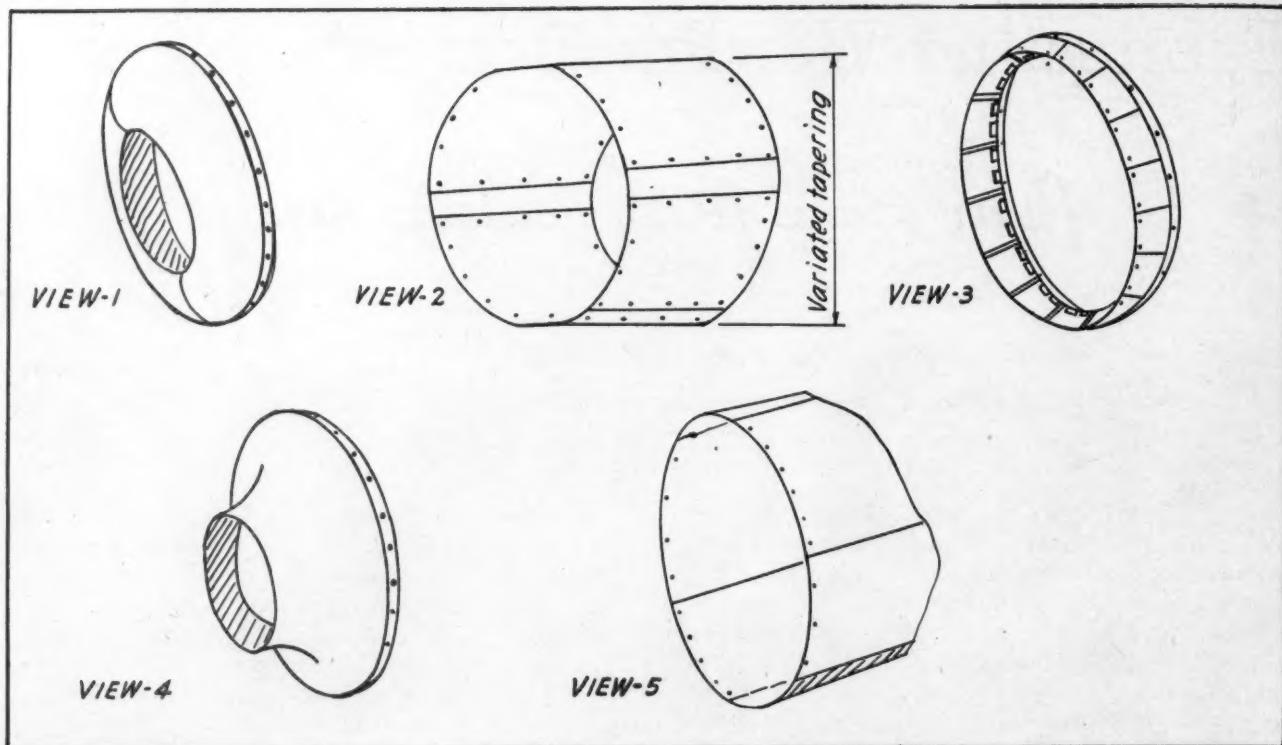
the component parts; (b) shearing or blanking; (c) provisioning in flat; (d) forming to shape; (e) binding by riveting, spotwelding or bolting; (f) provisioning after assembly of the components to insure fit of rivet or bolt holes to adjoining parts; and, (g) the fastening into the assembled product of smaller items as may be specified.

### Fixtures and Jigs

In addition to common machines and tools needed in the above work we shall require the following: (a) an accurate assembly jig receiving the components and holding them in their respective position while their binding together (even if only tacking), takes place; (b) a compound jig receiving the assembled product and holding it tight while the holes corresponding to holes in the adjoining part are being drilled or punched; and, (c), a gaging fixture by the employment of which we shall be able to accurately check the dimensions, the contours and the provisions in the product. These fixtures, in the smaller parts or assemblies, we may profitably construct ourselves, in our own shops, farming out the machining work if we lack the equipment. The fixtures may be bolted or welded together, whichever means tends to assure greater accuracy of final dimensions and provisioning means.

### Jigs Insure Uniformity

The importance of these fixtures as a means of obtaining accuracy of dimensions and locations of connecting means becomes understandable when we remember that the various parts or sub-assemblies may be fabricated in shops spread all over the country, each shop producing separately and guided by the blueprint only. The great number of the sub-assemblies received by the aircraft builder from outside sources must be assembled by him and, obviously, the various units so received cannot be mounted by him unless one fits the provisions in the other. Of late the aircraft builders have devised a procedure designed to assure them of a uniform fit of the sub-assemblies received from the outside, the procedure being: (a) the builder constructs the fix-



tures and jigs and gages himself; (b) loans or sells them to the sub-contractor; (c) retains a duplicate of the checking fixture and accepts the product then only if found right by checking in the fixture; and, (d) by duplicating the fixtures he builds he may let them out to a number of shops, each of the shops delivering to him a uniformly fitting product.

The above procedure is becoming standard with manufacturers engaged in the building of one identical model plane or craft, in factories one distant from the other, or several manufacturers building one identical model craft. In these cases the products of the sub-contractors are required to be interchangeable, not only to facilitate the uses of the one or the other product in crafts built in different localities, but also to insure the use of the so fabricated sub-assemblies in the field, to replace parts of the craft damaged in combat or otherwise.

#### Jigs Standardize Fabricators

This tendency, of the aircraft builders supplying the sub-contractor with fixtures and gages, greatly facilitates the fabricating task itself. With these uncommon tools supplied to him by the builder, the sub-contractor is relieved of the responsibility adhering to producing the determining tools himself; and, obviously, his responsibility terminates with the delivery to the builder of products fitting the gauging tools. The work of fitting the sheet metal parts and the accessories into the fixture and treating the assembly to correspond with provisions made in the fixture, is easy in comparison. All we need to do, in these cases, is to experiment with the several components until each fits snugly into its place in the

fixture, and then use the so tested parts for quantity production of them. By provisioning the assembled product in the jig supplied to us we only need to watch that the product fits snugly into the jig. And it is obvious that, if we produce carefully using the fixtures, the checking of the delivered product by similar fixtures in the hands of the prime contractor assures us of the product's accurateness and its passing the inspection.

#### Light Stainless Replacing Aluminum

Stainless steel of light gauge is coming more and more into use in the building of the craft. This especially applies to sub-assemblies delivered to the builder complete, he just mounting them, connecting them to the others of the kind or to the body of the craft itself. Stainless steel is being used because it needs no special heat-treatment after formation, as aluminum does; and because it can be welded without the process impairing the tensile strength of the metal. Hardened aluminum alloys are used in the construction of parts requiring no intricate formative work, and riveting is still the predominant means of binding in these assemblies. Forming stainless steel to the required shape steel, mainly in multiradial and intricate shapings in the outside of the fuselage, is not easily accomplished, nevertheless, the working of the steel to accuracy is less of a problem than is the reforming of aluminum parts which may have warped by the heat-treatment necessary.

In the accompanying drawings are shown, free hand, the main portions of the craft that are, as a rule, fabricated on the outside and delivered for mere mounting to the prime contractor: View 1 shows the "nose" of the plane, through which pro-

trudes the shaft bearing the propeller; View 2 shows the connecting engine cowling, mere panels covering the engine proper; View 3 applies to an assembly consisting of a ring formed to shape upon which move, on hinges, a series of "flaps," opening and closing; View 4 shows the exterior of another ring inside of which are provisions closing the gaps around the engine; and View 5 relates to the connecting fuselage.

#### Parts Are Standard Construction

The above items are shown here because they are fabricated, largely, by sub-contractors; and because these units (one mounted to fit the other) illustrate nicely the foregoing discussion of fixtures and jigs. We see, viewing the "nose" in view 1, that its connecting flange, connecting to the cowling, is provided with holes which must minutely correspond to holes in the cowling panels. Bolts used in connecting these sub-assemblies are of a unique construction, in some case "self-riveting" bolts being used, which produce a rivet-like head on the inside of the laps when turned or screwed, and in other cases the bolt closing over a spring which holds it in place. That same holes-fit is required in the flanges of the cowling and the ring shown in View 3, the fastening means being the same.

The drawings disclose the relationship of the

sub-assemblies, 1, 2, 3, 4 and 5, one to the other, and it is seen why the respective flanges must fit together snugly, leaving no gaps, and why the holes in the flanges must cover one another when the two parts are arranged into the mounted unit. By studying the drawings and the requirements of the "fitting" of the sub-assemblies treated here, and in consideration that the fit and the holes are arrived at by working the parts in the aforesaid accurately dimensioned fixtures, we receive a less "frightening" concept of the "secrets" of plane construction widely heralded by the aircrafters who, in most cases, understood very little of sheet metal work and, therefore, broadcasted its difficulties.

The interior construction of the several sub-assemblies differs not much from the exterior work. There are castings, hinges, reinforcements, angles, provisionings—all dimensioned, in assembly, by the fixtures in which assembled. If assembled and fastened as the specification calls for; and if the prints by which the fixtures originated were accurate, then the sub-assemblies, in all their respective particulars must be right. And the shop that goes into sub-contracting for these parts needs only to strictly adhere to the metal thickness specified and the fastening modes given and, if supplied the fixtures, do the work in-and-by them, to fully comply with requirements.

## 500,000 Housing Units Completed Since July 1, 1940

**W**AR housing completed since July 1, 1940, now totals some 500,000 living units of all types, National Housing Agency, announced October 20.

Private industry at a cost of approximately \$1,400,000,000 has built 355,000 family units located within reasonable commuting distance of a war activity and made available at rentals or sale prices within the reach of the war workers.

Private builders also completed in war production areas during this period some 470,000 dwelling units that are not classed as war housing because of their location or cost. These structures were started before the present strict limitations on construction.

In addition, private builders have under construction for war workers an estimated 76,000 dwellings, and priority orders have been granted for 110,000 more, although work has not yet begun on these.

Public housing accounts for 141,690 units of the total completed, divided into 116,169 family units of various types, 15,027 dormitory accommodations for single workers, and 152 dormitory, or war, apartments for 2-person families, as well as 10,342 trailers. Public housing under construction or contract includes 129,086 family units, 21,248 dormitory units, 13,078 dormitory apartments, and 547 trailers.

These figures, both as to public and private construction, do not include a substantial number of units completed during this period in communities which were not war production areas.

The War Manpower Commission estimates that at least 12,000,000 workers will have to be placed in new jobs during the period July 1, 1942, to July 1, 1943. Because some family groups average more than one war worker per family, this in-migration will require 1,320,000 living accommodations of various sizes and types.

NHA plans to find 650,000 accommodations in existing structures, converting wherever possible large single-family structures to produce additional living units.

The other 670,000 accommodations must be new housing. Private industry has been asked to build 270,000 family units, for which priority ratings are now available. Public construction, both scheduled and still to be appropriated for, must provide the remainder, which will include 205,000 family units and 195,000 dormitory and dormitory apartment accommodations. This Nation-wide program is designed to help meet the minimum housing needs of some 550 localities.



THE American Iron and Steel Institute, many months ago appointed a committee to suggest substitute coating materials for use by its members during the prevailing emergency period.

A highly interesting and valuable report of the work of this committee has been issued. Such coatings as have been offered for consideration will undoubtedly go a long way toward supplying the necessary protection to iron and steel products, and steel manufacturers and consumers alike should find in them a fairly satisfactory solution to a difficult problem.

#### Zinc—The Best Metallic Coating

Zinc, in the form of galvanizing, is stated by the U. S. Bureau of Standards (Circular 80) to be "by far the best" protective metallic coating for the rust-proofing of iron and steel. This statement is based largely on the electrochemical nature of zinc, which is the only one of the commonly used metals which exerts a "galvanic" action, actually preventing rust formation. Since iron stands below zinc in the electromotive series of metals, zinc—when in contact with iron and steel—offers sacrificial protection to the latter by corroding at a negligible rate, thus providing the best possible protection against rust. In fact, so effective is this action that even where a small area of the underlying iron or steel is exposed to the atmosphere, rusting is retarded.

It is this property of zinc which has made the galvanized coating the most satisfactory, as well as the most economical, coating commercially available to the steel industry. And it is protective quality equal to that of the zinc coating which the manufacturer of galvanized products had uppermost in his mind in his search for the most serviceable alternate coating. However, when it was found that no other metal was available to equal the performance of zinc for this purpose, a comprehensive investigation was un-

dertaken to determine the suitability of various other types of coating materials.

#### Paint Coatings Suggested

In this study, four major classifications are listed in the American Iron and Steel Institute's report for consideration as follows:

1. Lead base coatings.
2. Metals unavailable or of restricted availability.
3. Non-metallic inorganic coatings.
4. Organic coatings.

This discussion will review some of the suggestions made for organic coatings.

Cooperating in this work were a number of large paint manufacturers who were consulted—first, to ascertain the finishes that would be best suited as substitute coatings regardless of availability, and second, coatings comprised of materials that would not likely be listed in the Priority List. In consideration of all recommendations received, it became necessary to discard certain finishes composed of materials that are definitely unavailable.

At the time the report was issued the following list of materials was suggested for use in the production of paints as substitute coatings for zinc on steel:

#### Pigments:

Lead Chromate  
Zinc Chromate  
Red Lead  
Blue Lead  
Zinc Oxide  
Magnetic Oxide of Iron  
Red Oxide of Iron

#### Fortifying Agents:

Alkyds  
Phenolics  
Urea-formaldehyde  
Oleo-resins

#### Vehicles:

Processed Oils  
Linseed Oil

Reprinted from *Paint Progress*.

#### The report states:

"The paint used should have a background of four to six years of satisfactory performance; sufficient drying and hardness for stacking, packing and shipping; sufficient elasticity for moderate fabrication; a high degree of protection against the elements, embracing the acknowledged rust inhibitive type of available pigment; and, finally, a surface appropriate for accepting any and all types of succeeding decoration."

It is emphasized in the report that paint coatings recommended cannot be considered by themselves as substitute coatings for metallic zinc in the galvanizing process, and that preparation of the surface of the sheets must be taken into account. Several methods of pre-treatment of the sheets are recommended, including those of the light metallic type which involve flash coatings of zinc and terne metal, and others classed as chemical treatments achieved by standard pickling methods.

Paint coatings are also recommended for untreated black sheets, commonly made and used for many years for roofing purposes, but here again it is pointed out that such coatings are not to be considered satisfactory by themselves, but must be followed by additional coats of paint immediately after application of the sheets to the job.

Bearing out this report of The American Iron and Steel Institute, the following facts on zinc oxide as a pigment in metal primers are of interest.

#### Adding Zinc Oxide to Iron Oxide Paints

Zinc oxide in metal priming paints functions as a practical suspending agent for preventing hard settling. It also contributes weather resistance and, in addition to being in the inhibitive class, aids the other inhibitive pigments by counteracting undesirable acid conditions within the film.

Because of the character of zinc oxide its inclusion in priming paints is a logical step. Fifteen to twenty per cent zinc oxide (based on total pigment) is usually sufficient to build up the weather resistance to a practical degree. When

the performance of such combinations is further stepped up by substituting other inhibitive pigments for iron oxide, as in the case of zinc dust, in proportions to produce a combination such as 50-20-30 Zinc Dust-Zinc Oxide-Iron Oxide, the results are highly satisfactory from a practical point of view. This represents a principle for formulating weather-resistant, inhibitive paints.

#### Zinc Dust in Metal Protective Paint

Zinc dust as a substitute material for metallic zinc coatings on steel does not appear in the American Iron and Steel Institute's report, probably due to the restricted availability of this product. However, this pigment should be included in any discussion on substitutes for galvanized coatings, and the following thoughts on its suitability are of interest.

The galvanic action exerted by zinc in preventing rust formation on iron and steel is the chief reason for the use of this metal as a coating material. Tests show that this same characteristic of zinc in the galvanizing process also is present when zinc dust is placed in contact with metal surfaces, and there is evidence that some of the protection afforded by Zinc Dust paints is the result of this electrochemical action of the pigment.

Many results over a period of years with 80-20 Zinc Dust-Zinc Oxide paint have demonstrated its unusual metal protective properties, and a growing interest in the results obtained has developed a demand for a Zinc Dust paint of the same general character, but available at somewhat lower cost. Such a paint is the 50-20-30 Zinc Dust-Zinc Oxide-Iron Oxide combination.

#### Finish Paints for Metal

Finish coats for metals for industrial parts and structures must be designed to meet a wide variety of conditions and often require special formulation. However, formulations of the type used for general exterior service give excellent protection under average conditions, provided they are fortified with sufficient zinc oxide to take into account the more rapid chalking and erosion that tend to occur on metal surfaces.

### THE SCRAP DRIVE GOES ON!

If there's a big pile of old bedsteads and wash boilers in your city don't sit back and feel you've done your bit in the scrap drive. A "mountain" of scrap in storage at the mill may be only enough to keep the furnaces going for a week or so. Scrap inflow must be continuous all winter. More and more steel must be produced. If you have cleaned out everything you know you won't need—look around for machines, tools, old material laid aside for some "possible use"—that's needed, too.

# Pattern Development for Heavy Gauge Blow Pipe Fittings\*

## [Branch Junction With Tapering Main]

By William Neubecker

**T**HIS third article will cover the pattern developments for the fitting B shown on the accompanying Plate No. 10, reproduced from the book, Standard Practice in Sheet Metal Work, page 508, published by the National Association Sheet Metal Contractors which covers various junction branch pipe connections, with tapering main line, at an angle of 30 deg. or any other angle.

The method of developing a fitting of this kind, is shown in the development details Figs. 13 to 17, inclusive, using various gauges of heavy metal in its construction. In laying out pattern shapes where heavy metal is used, always use the neutral diameters regardless of what thickness the metal may have. The neutral or mean diameter is the diameter taken from center to center of the metal thickness as shown in Fig. 13 in the development details, where the inside, neutral and outside diameters are shown. At the neutral diameter, the metal does not contract or stretch during the process of rolling; but the inside diameter and outside diameter of the metal undergo a change in shape; the inside contracts and the outside stretches, but the center of the metal thickness remains neutral.

### Neutral and Outside Diameters Used

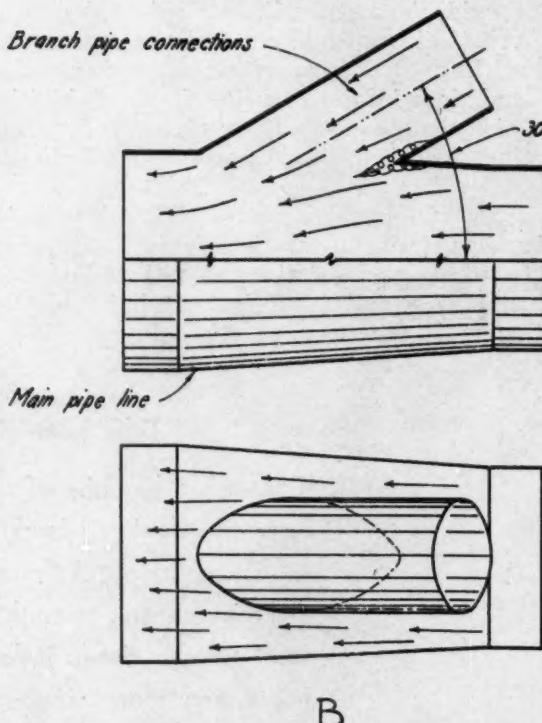
In some developments it will be necessary to use both the *neutral* and *outside* diameters, as in the present problem where the branch pipe intersects the main as shown in Fig. 14. Here the *neutral* diameter is used for the branch and the *outside* diameter for the main, because the branch intersects the *outer* surface of the main or *outside* diameter, which will be made clear as we proceed.

A-B-C-D in Fig. 14 shows the front elevation of a tapered joint in the main line with the junction branch set in its proper position at an angle of 30 deg. The proper angle at which the branches are set in the main lines is very important. Using an angle of 30 deg. an elongated opening is obtained which gives a greater orifice efficiency as shown in the pattern in Fig. 16. The branch shown in Fig. 14 should be as close as possible to the large end of the main line as shown. In this case the taper joint of the main suction

line is exaggerated so that the various intersecting joints between the branch and main can be shown in so small a drawing.

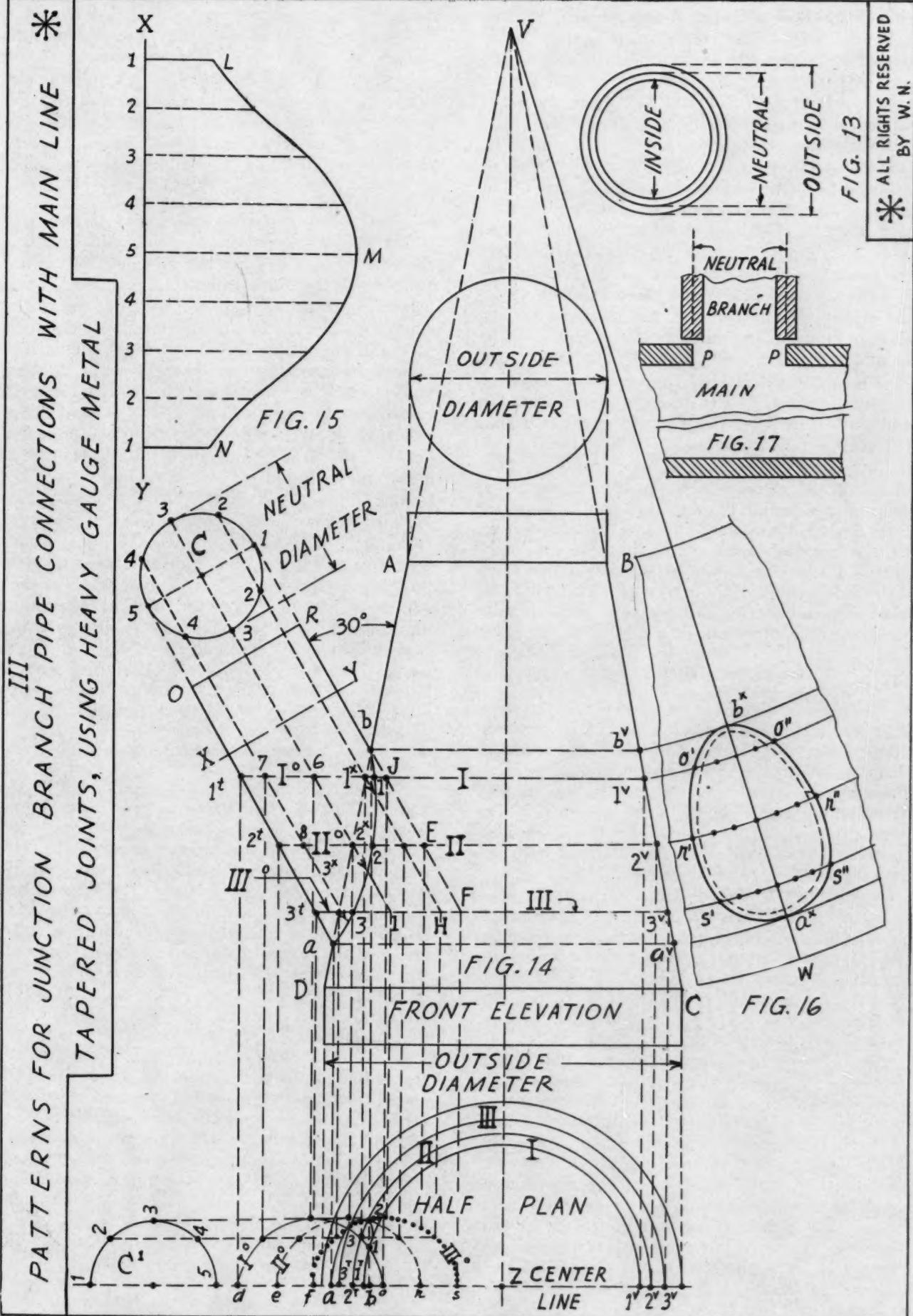
Now above the small end of the taper joint draw the *outside* diameter and below in the half plan draw the semi *outside* diameter of the large end, because as before mentioned, the branch will intersect the *outer* surface of the main.

At an angle of 30 deg. draw the branch pipe in elevation as shown by R-O-a-b and in its proper position above O-R draw the *neutral* diameter of the branch as shown by the circle C, which space in an equal number of divisions (in this case eight) using a greater number of divisions in practical work. Through the divisions 2-3 and 4 draw lines parallel to O-a to intersect the side of the taper joint A-D at 1<sup>x</sup>-2<sup>x</sup> and 3<sup>x</sup> respectively and from these points of intersections draw lines



Fitting "B" from Plate 10, page 508, Standard Practice in Sheet Metal Work, is a one-branch "Y" frequently used in blow pipe systems. Minimum entrance loss is the reason for the small angle of entrance.

\*All rights reserved.



parallel to the base  $D-C$  to intersect the opposite side of the taper  $B-C$  at  $1^v-2^v$  and  $3^v$ .

From these intersections drop perpendicular lines to intersect the center line in the half plan also at  $1^v-2^v$  and  $3^v$ . Now using  $Z$  as center with radii equal to  $Z-1$ ,  $Z-2^v$  and  $Z-3^v$  draw the semi-circles, shown respectively by  $I$ ,  $II$  and  $III$ . Then will the semi-circle marked  $I$  in the half plan show the semi-section on the plane  $1^v-1^v$  in elevation, and the two semi-circles shown by  $II$  and  $III$  in the half plan, the semi sections on the planes  $2^v-2^v$  and  $3^v-3^v$  in elevation. Now extend the planes  $1^v-1^v$ ,  $2^v-2^v$  and  $3^v-3^v$  to the left until they intersect the lower line of the Branch  $O-a$  at  $1^t$ ,  $2^t$  and  $3^t$  respectively. Also extend the plane lines shown in the branch pipe by  $1-b$ ,  $2-1^x$ ,  $3-2^x$ ,  $4-3^x$  and  $5-a$  until they intersect the plane lines  $1^v-J$  or  $I^v$ ,  $2^v-E$  or  $II^v$  and  $3^v-F$  or  $III^v$ , at  $1^v$ ,  $6$  and  $7$ ;  $2$ ,  $2^x$  and  $8$ ; also  $H$ ,  $I$  and  $3^x$  respectively. Take a reproduction of the semi-circle  $C$  of the branch pipe in elevation and place it in the position shown in the half plan  $C^1$ . Number the divisions  $1$  to  $5$  as shown.

Now from the various intersections  $1^v$ ,  $7$ ,  $6$ ,  $1^x$  and  $J$  on the plane  $I^v$  in the branch in elevation, drop perpendicular lines to the plan to intersect lines drawn from points  $1$  to  $5$  in the semi-section  $C^1$ , and parallel to the center line. In this manner obtain the semi-elliptical section shown from  $d$  to  $o$  or the solid curve marked  $I^v$ . This solid line semi-elliptical section represents a plan view on the plane  $I^v$  in elevation.

#### Branch Semi-Elliptical Section

The same procedure is required to find the semi-elliptical section on the plane  $2^v-E$  or  $II^v$  in elevation. From the intersection  $2^v$ ,  $8$ ,  $2^x$ ,  $2$  and  $E$  drop perpendicular lines and intersect them by lines drawn parallel to the center line in plan from points  $1$  to  $5$  in the semi section  $C^1$ . The semi-elliptical section shown by the dash lines from  $e$  to  $r$  marked  $II^v$  will be the true half section on the plane  $II^v$  in elevation.

Again from the various intersections  $3^v$ ,  $3^x$ ,  $I$ ,  $H$  and  $F$  on the plane  $III^v$  in elevation, drop perpendicular lines to intersect lines drawn from the semi-section  $C^1$  in plan, parallel to the center line from — points  $1$  to  $5$ . This semi-elliptical section  $f-s$  shown dotted and marked  $III^v$  will be the true half section on the plane marked  $III^v$  in elevation.

Now where this semi-section of the branch marked  $I^v$  in plan, crosses the semi-section of the main marked  $I$ , at  $1$ , this gives the intersecting point between planes  $I$  and  $I^v$ . From this intersection  $1$  in plan, erect the perpendicular to meet the plane lines  $I$  and  $I^v$  in elevation at  $1$ . Where the semi-section  $II^v$  in plan crosses the semi-section  $II$  at  $2$ , erect a perpendicular line to intersect the plane lines  $II$  and  $II^v$ , at  $2$ , in elevation. Where the semi-section  $III^v$  in plan crosses the semi-section  $III$  at  $3$ , erect a perpendicular line to intersect plane lines  $III$  and  $III^v$  in elevation at  $3$ . A line traced from  $b$  to  $1$  to  $2$  to  $3$  to  $a$  in elevation will

be the joint line between the branch and tapered main.

If desired to show this joint line in plan (although not necessary in the development of the patterns) drop perpendiculars from  $a$  and  $b$  in elevation to meet the center line in plan also at  $a$  and  $b$ . Now trace the joint line from  $b$  to  $1$  to  $2$  to  $3$  to  $a$ . Finding the miter or intersecting joint  $a-b$  in elevation is more than three-fourths the battle.

#### Pattern for Branch Pipe

Developing the pattern for the branch pipe is shown in Fig. 15. Take the girth of the neutral diameter of the branch shown by  $C$  in Fig. 14 and place it on the line  $X-Y$  in Fig. 15 as shown by similar numbers,  $1$  to  $5$  to  $1$ . From these divisions at right angles to  $X-Y$  draw lines indefinitely. Now at right angles to the branch in Fig. 14 draw any line as  $X-Y$ . Where the lines drawn from the various numbered divisions in the neutral diameter  $C$  through the branch intersect the joint line between the branch and main, indicated by  $a-b$ , mark these intersections by arrow points as shown.

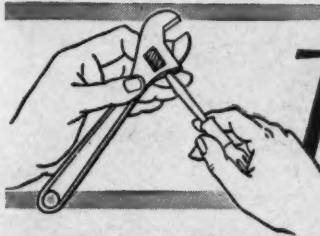
Now measuring in each and every instance from the line  $X-Y$  in elevation take the various distances to the arrow points and place them in the branch pattern in Fig. 15, measuring in each and every instance, from the line  $X-Y$  on similar numbered lines. Trace a line through intersection so obtained; then will  $1-L-M-N-1$  be the net pattern for butt joint welded. If riveted seam is desired add laps along  $1-L$  and  $1-N$  also a lap along the pattern curve  $L-M-N$  for flanging.

#### Pattern for Opening in Main

Extend the tapered sides  $D-A$  and  $C-B$  of the main in Fig. 14 until they intersect at  $V$ . Using  $V$  as center with radii equal to  $V-B$ ,  $b^v$ ,  $1^v$ ,  $2^v$ ,  $3^v$ ,  $a^v$  and  $C$  draw short arcs as shown in Fig. 16. At pleasure, draw any radial line from  $V$  to  $W$ , crossing the arcs just drawn. The intersection  $a^x$  and  $b^x$  remain fixed points. Now measuring from the center line in the half plan in Fig. 14, measure the curved distance from  $1^v$  to the intersection  $1$  on the semi-section marked  $I$  and place it in Fig. 16 on either side of the radial line  $V-W$  on the arc struck from  $1^v$  and obtain the intersections  $o'$  and  $o''$ .

In a similar manner, again measuring from the center line in the half plan in Fig. 14, measure the curved distances from points  $2^v$  and  $3^v$  to the intersections  $2$  and  $3$  on the semi-sections marked  $II$  and  $III$  respectively and place them in Fig. 16 on either side of the radial line  $V-W$  on arcs struck from  $2^v$  and  $3^v$ , and obtain the intersections  $r'-r''$  and  $s'-s''$  respectively. Trace the irregular curve through intersections so obtained, which will be the elongated opening to be cut in the pattern for the tapered main to receive the branch pipe.

(Continued on page 92)



# TOOL NOTES

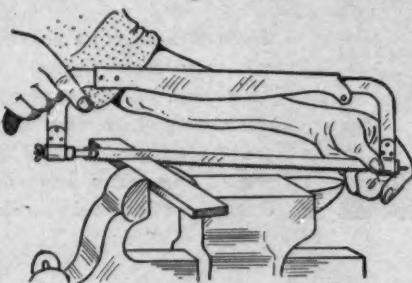
Maintenance  
and Repair  
Suggestions to  
Prolong Tool Life

## No. 6 NOTES ON USE AND CARE OF CRESCENT HACKSAWS

teeth can be left harder in manufacture and therefore superior cutting qualities result.

Blades are made with a varying number of teeth per inch ranging from 14 to 32. Selection should be based upon material to be cut. Blades having 18 teeth are best for general, all-round service including solid stock and structural shapes. For pipe and conduit, light angles and ornamental iron, a blade having 24 teeth is preferable. For thin sheet metal and light tubing, use a blade with 32 teeth to the inch.

**INSERTING BLADE IN FRAME.** Insert the blade with teeth pointing away from the operator and tighten so the blade is well strained, but not to the point where the pins will shear or loosen. Be sure blade is square and true in the frame. Since edge-hardened blades are flexible, they should be strained tighter than those that are *hardened all over*. After the first few strokes it is good practice to retighten a new blade.



**HOW TO CONSERVE HACKSAW BLADES.** Breakage necessitates blade replacement much more frequently than does wear. Many blades are broken because too much pressure is applied when cutting a small surface. The concentration of pressure at a single point on the blade causes it to buckle and break. This failure occurs more readily when blade is weakly strained.

Cramping and binding causes considerable breakage that can be avoided by sawing with straight-line strokes, taking care not to tilt or cant the saw frame.

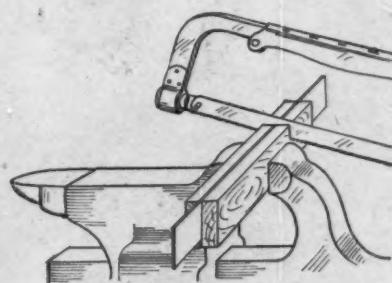
Insecurely held work, likewise, is a frequent cause of blade breakage. If the work becomes loose while cutting, the sudden binding and distortion of the blade is practically sure to cause breakage.

Repair Parts are available for Crescent Hacksaws.

Hacksaw Blades are made in two general types: those hardened all over, and those having only the teeth or cutting edge hardened. In the latter type the

### HINTS ON HACKSAW USE.

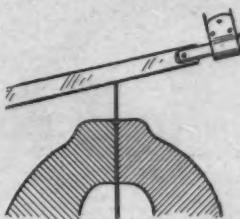
Use normal care in handling the hacksaw. Don't use the frame as a hammer or pry. Make sure the material to be cut is held rigid and so placed that the maximum number of teeth engage throughout the cut. At least two teeth should be in contact with the work at all times.



Begin the cut carefully but with sufficient pressure to make the teeth cut... not merely rub on the metal. Lift the saw slightly on the return stroke to avoid dragging the teeth and thus dulling the cutting edge. Forty to fifty strokes per minute is about top speed for efficiency. For faster cutting, increase the pressure... not the speed.

When cutting very thin stock, a good method if conditions permit, is to clamp it between two pieces of wood and saw through the whole assembly, as illustrated above.

Never permit a condition wherein the teeth of the blade "straddle" the work. Stripped teeth are bound to result. Keep as many teeth in contact with the work as possible by changing angle of contact between blade and work; using a blade of finer pitch, or by "sandwiching" as explained above.



**CRESCENT TOOLS**  
*Give Wings to Work*

CRESCENT TOOL COMPANY, JAMESTOWN, N. Y.



IGLOO  
WIGWAM

**With the armed forces**—In Iceland they call these huts "igloos," in Panama they're "wigwams." At widely-separated points, in the Americas and overseas, structures of this type are housing men of the U. S. Army. This is but one of the many ways in which Bethlehem Galvanized Sheets are serving the armed forces.

## SHEETS

## in the war effort

**On the home front**—Bethlehem Galvanized Steel Sheets are helping in the war effort along the home front, too. In war housing the nation over, warm-air ducts, ventilators and stacks of Bethlehem Galvanized Sheets are on the job. In Army camps and training centers, in Navy establishments and Air Corps training schools, Bethlehem Galvanized Sheets are doing routine but important work.

**On the production line**—In war production plants Bethlehem Galvanized Sheets are serving as roofing and siding, in air ducts and many other applications. Bethlehem Hot- and Cold-Rolled Sheets in large tonnages are going into war products ranging from powder cans, ammunition racks and bomb fins to anti-submarine net buoys, hatch coamings and extensive uses on destroyers and battleships.



**BETHLEHEM STEEL COMPANY**



Left to right—Secretary Thomas A. Fernley, Jr.; Past-President A. J. Becker (Ohio Valley Hardware & Roofing Co.); and President-elect Eugene Foley (Bayonne Steel Products Co.) hold a post-convention conference.

## Sheet Metal Distributors Will Get a Guaranteed Monthly Tonnage

ON October 19 and 20, sheet steel distributors from all over the country met in Chicago in the 32nd semi-annual meeting of the National Association of Sheet Metal Distributors to hear Washington agency heads give the latest news on orders affecting warehouses.

The report rendered by the agency heads was, in brief, not encouraging, but seemed to indicate that some order is coming out of the present confusion.

For example Linford C. White, Chief, Distributors Branch, WPB, explained that L-63 was designed and intended to protect wholesalers by making it just as easy for a little jobber to get stocks as for the big jobber, but that the intent has gone astray for many reasons. Fanciful PD-1X's by which a jobber hopes to increase his stock beyond actual current needs has overloaded the manufacturers with the result that no one is getting anything.

Rubber stamp P-100's handed out hit or miss by salesmen for anything and everything has nearly killed the value of the P-100 order. Manufacturers, loaded far beyond capacity are refusing to ship on A-10's and are trying to insist on AAA, AA and high ratings so the jobber, in turn, tries desperately to get these high ratings from his customers. Mr. White declared that WPB knows absolutely that A-10's will get certain items before they place the A-10 on the PD-1X but WPB can't tell a jobber who has items for sale on A-10 so the jobber should "shop far and wide."

All PD-1X's in the fourth quarter are automatically

being cut 25 per cent and some items and some PD-1X's will be cut as much as 80 per cent before the end of the year.

### Redistribution Problems

Russell C. Duncan, Materials Redistribution Branch, WPB, said the hope of his branch was that most materials surrendered can be used "as is"—this will reduce the quantity scrapped, will enable the seller to find his own buyer, will give the seller the best price, and will cut red tape and handling all along the line.

The plan is, said Mr. Duncan, to set up a national inventory so that any firm in any area can find from his local Redistribution Branch what materials are near at hand or where they may be found. For a complete analysis of steel recovery see Arnold Kruckman's Washington Letter in the October Artisan.

### Small Tools Scarcity

Roy Halquist, Chief, Small Tools Branch, WPB, announced that all manufacturers of small tools were being scaled down in materials allotments in the fourth quarter and for civilian needs still greater reductions must come. There just isn't going to be enough small tools for civilians. WPB would like to set up some system whereby the retailer can judge the civilian's actual need for a tool and refuse the sale if he knows the buyer doesn't really need the tool.



Left to right—J. M. McConnell, Chicago WPB, explained L-79 and L-123 limiting orders on equipment; E. L. Wyman, Iron and Steel Branch, WPB, explained markup under OPA price ceilings; J. R. Stuart, Warehouse Unit, Iron and Steel Branch, reported jobbers may now sell 150 tons of sheets per quarter on low ratings instead of the former 5 per cent of the quarter quota.

Such a program, the meeting decided, just isn't possible.

#### P-100 Troubles

More P-100 troubles were discussed by Dean C. Gallagher, Chief, Emergency Rating Branch, WPB, who said that P-100 is only for maintenance of the jobbers *own* building and is not intended as an order for building up jobber's stocks of maintenance materials for sale. P-100 is tight control, but has been purposely tightened up because many industries tried to build top-heavy inventories by placing many P-100's. Mr. Gallagher also pointed out that manufacturers *must* fill low rated orders unless the item asked for is frozen by other limitation orders. This is not being done.

#### PD-IX

Lewis Herndon, Senior Hardware Consultant, Distributors Branch, WPB, explained how L-63 is expected to deflate some top-heavy inventories by limiting a jobber's stocks to a 60-days' supply. Also, that inventory is figured at dollar *cost*, not sales price and the inventory under L-63 does not include items sold direct to the consumer. Direct sales inventories are operated under other orders.

The purpose of L-63 control, he explained, is to safeguard legitimate jobbers from brokers who otherwise could sell large volumes of most articles by bypassing the jobbers' functions of warehousing. Chain store inventories must include all stores—one store can only be a part of the chain's inventory.

Mr. Herndon advised jobbers to keep their PD-336 record up to date and on file because the record may be called for.

Advantage may be taken of PD-1X, said the speaker, if jobbers understand that a PD-1X can be filed anytime—several a day if necessary and any number may be filed. It will help WPB if PD-1X's are lumped so far as possible and if the applicant will ask only for absolute needs, not fancied needs.

#### Distribution of Steel Products

J. R. Stuart, Head, Warehouse Unit, Iron and Steel Branch, WPB, explained how the steel mills are now operating under directives established from monthly mill reports. A committee determines from these monthly reports what the demand will be and the types required and then assigns a schedule to each mill. Mill production in September was high, but demand for the month was almost three times as high as production and all the demand was on ratings above A-1-A.

What will come, shortly, is that each mill will be directed to roll certain sheet types and ship a guaranteed tonnage each month to certain jobbers. This tonnage will not be sufficient to meet demand—it may be only a trickle, but the jobber can be sure he will get this tonnage. This certain tonnage will be just about enough, said Mr. Steuart, to satisfy maintenance needs.

The basis on which this plan is being set up is as follows: If a jobber, in 1940, got over 800 tons of sheets he will now get 2½ per cent per quarter of what he got in the same quarter of 1940. Jobbers getting, in 1940, 20 to 200 tons of sheets will get about 1 car of sheets *a year*; 200 to 400 tons will get 2 cars a year; 400 to 600 tons will get 3 cars a year; 600 to 800 tons will get 4 cars a year. Note this is cars *per year*. This will be seasonally divided into quarters.

This tonnage will be *guaranteed*. (Editor's Note: Chicago WPB says (Nov. 1) that the Priorities branch has not received a copy of this directive, but Secretary Fernley has mailed a letter to jobber members verifying the figures given above.) What was not stated was how the jobber may sell this guaranteed tonnage.

How this tonnage may be distributed is covered in Amendment 7 to M-21-b effective October 30 which says: "Except as hereinafter provided, no warehouse or dealer shall deliver iron or steel products except on an order bearing a preference rating of AA-5 or

## OFFICERS

President—Eugene Foley, Bayonne Steel Products Co., Newark, N. J.

Vice-President—Bruce Haines, E. E. Souther Iron Co., St. Louis, Mo.

Vice-President—H. E. Usinger, Berger Bros. Co., Philadelphia.

Secretary-Treasurer—Thomas A. Fernley, Philadelphia.

higher: Provided, however, that:

"A warehouse or dealer may deliver iron or steel products on an order certified for essential repair or maintenance purposes and bearing in the case of iron or steel sheets a preference rating of A-10 or higher; provided that deliveries of sheets in this manner by any warehouse or dealer during any calendar quarter do not exceed the amounts indicated below:

"Whichever is the greater of (A) 5% of the quarterly quota for all such products or (B) an aggregate of 150 tons of all such products (but not more than the quarterly quota for all such products)."

This means that sheets for repair or maintenance can be sold on A-10 to an extent of either 5% of the quarterly quota or 150 tons as the jobber wishes. We analyzed this problem in our editorial on page 17 of the August issue and pointed out that many jobbers can sell insufficient sheets for repairs if limited to 5% of their stocks. The 150 tons alternative helps greatly.

But note that in place of the A-1-k required for all other sheet stocks of M-21-b, the amendment 7 now requires AA-5.

Another change in amendment 7 makes it possible for a warehouse to appeal to Warehouse Branch in case a customer wants 8,000 pounds or more which shipment would deplete the warehouse stock.

## Repair of Heating Equipment

J. M. McConnell of Chicago WPB said L-79 does not permit any conversion from oil to coal without a rating, but does permit application of grates without a rating. He said L-123 ties up fans for replacement, includes attic fans, and freezes fans wherever they may be. Fans incorporated in the manufactured furnace are not included.

## Copper Recovery

Guy P. Norton, Unit Chief, Copper Branch, WPB, said the copper recovery program is getting in copper from every possible source even to skimming off crucibles, tailings from mines. Production and recovery is producing  $\frac{1}{4}$  million tons more than ever before but the demand continues so great that civilian use is highly improbable. If demand continues WPB may ask for your copper or brass doorknob and might even take the Statue of Liberty and rebuild it in gold.

## Steel Resale Prices

From Warehouse Section, Iron and Steel Branch, OPA, E. L. Wyman, Chief, said OPA finds about 15% of steel products pass through jobbers and that the resale schedule (September, Pages 27 and 29) allows the April 16 prices plus 20% for markup to be the resale price on less than carload lots. Carload lots or more allows mill price plus no markup which seems to eliminate the jobber, but OPA will make exceptions if relief is asked. These strict prices were needed, said Mr. Wyman, because OPA found some transactions showed a profit for each of as many as six brokers—this OPA intends to stop.

Violators are now being taken to court. Eventual licensing of all sellers is contemplated. Splitting large quantities into many small quantities in order to get small quantity higher prices will also be stopped and punished. Seconds and rejects can no longer be sold at prime prices.

Shortly OPA intends to publish listed prices for representative cities; when this is done steel must be sold at these prices or at the listed price of the nearest representative city.



President-elect Eugene Foley receives the gavel from Past-President A. J. Becker following the election of officers.

# Association ACTIVITIES

## Silver Anniversary NWAH&ACA

Dr. Arthur Cutts Willard, President of the University of Illinois, will be the guest speaker and will speak informally on the historic occasion of the Silver Anniversary of the Warm Air Research Program of the National Warm Air Heating and Air Conditioning Association. comparatively few industries have sponsored a technical research program without interruption for twenty-five years. The Warm Air Research Program was born and initiated during the first world war and that program has been continuous during both good years and bad years.

At our Convention a full half-day will be given over to the historical background of our Association and following Dr. Willard we will hear from Professors Kratz and Konzo who will give us more or less details covering our Research Program to date.

Following the professors, W. G. Wise who was a vice-president of our Association 25 years ago and I. L. Jones who was treasurer at that time (both have been since that time presidents of our Association) will make brief talks giving a few of the intimate and interesting details surrounding the acceptance of the University's proposal to initiate a Warm Air Research Program.

Allen W. Williams, our former managing director, has just recently completed a History of the National Warm Air Heating and Air Conditioning Association. It is complete, interesting and informative and he will give us a brief outline of the history which he has written.

Fred G. Sedgwick, Chairman of our Research Advisory Committee will speak, summarizing the benefits of our Research Program in its effects on consumers, members of the Association and the industry.

A substantial part of our Convention time will be set aside for talks in connection with Post War Plans in general and specifically in connection with the warm air industry. We will have a government representative who can give us information regarding government plans for our industry and who can answer questions. In addition we will have an open period for discussion from the floor of the convention, concerning the many problems with reference to obtaining contracts for war work.

Entertainment will be modest to fit the times. E. B. Lau has accepted our invitation to show the techni-color movies of his hunting trip in Alaska about a year ago. President Sharp has appointed George Auer as Chairman of the Cleveland Entertainment Committee.

What our Association does with its time and effort during the war period will favorably or unfavorably influence our industry's relative position compared to other industries when peace comes.

Make your plans now to attend this very important convention—make your room reservations early. Rates at the Cleveland Hotel start at \$3.00 single and up.

George Boeddener,  
Managing Director.

## Michigan

The Michigan Sheet Metal, Roofing, Heating and Air Conditioning Contractors' Association held a pre-convention directors' meeting at the Hotel Olds, Lansing, on Thursday, October 8.

The high light of the meeting was the unanimous decision to hold a 1943 Convention, regardless of the times, and the convention will be held in Saginaw on March 2, 3 and 4, 1943.

Elmer Schartow of Midland is president of the association and Jack Mallack is the director from Saginaw who will help in planning a real bang-up convention, second to none.

The publication of the annual program will be in the hands of Treasurer P. W. Wierenga, 265 S. Ionia Street, Grand Rapids.

The meeting was fortunate in having as a guest Jim Morrissey, president of the Salesman's Auxiliary, who promised that his group will deal out their usual—or better if that is possible—entertainment.

E. C. Spraker, Secretary.

## Erie, Pennsylvania

The Sheet Metal Contractors' Association of Erie, Pennsylvania, held an all-day basket picnic on September 12th at Member Auer's farm and summer home. About sixty



people attended, families of association members.

There was a baseball game, and games for women and children.

L. C. Trost, President.

## Florida

The Roofing and Sheet Metal Contractors Association of Florida, in their October issue of "The Florida Roofer," reminds readers and members that it is necessary that the association keep active and be alive to assist in changes which are taking place, and which will take place after the war. Members are invited to send in their dues for 1942 and also to send along news of what is happening in their section.

There is work to be done at Army camps for roofers and sheet metal men. Essential maintenance work must also be carried on, even though handicapped by government regulations, scarcity of men, and delays in securing materials.

L. A. Burgess, Secretary.

## Detroit

The Detroit Association of Warm Air Heating and Air Conditioning Contractors, Inc., sorrowfully reports the death of their good friend and member Ed Gracey of the Detroit Furnace & Stove Repair Company. His residence is at 8392 Outer Drive. Ed was ever ready to help the association or any of its members when in need.

Funeral services were held on Thursday, October 22, from St. Davids church on Outer Drive.

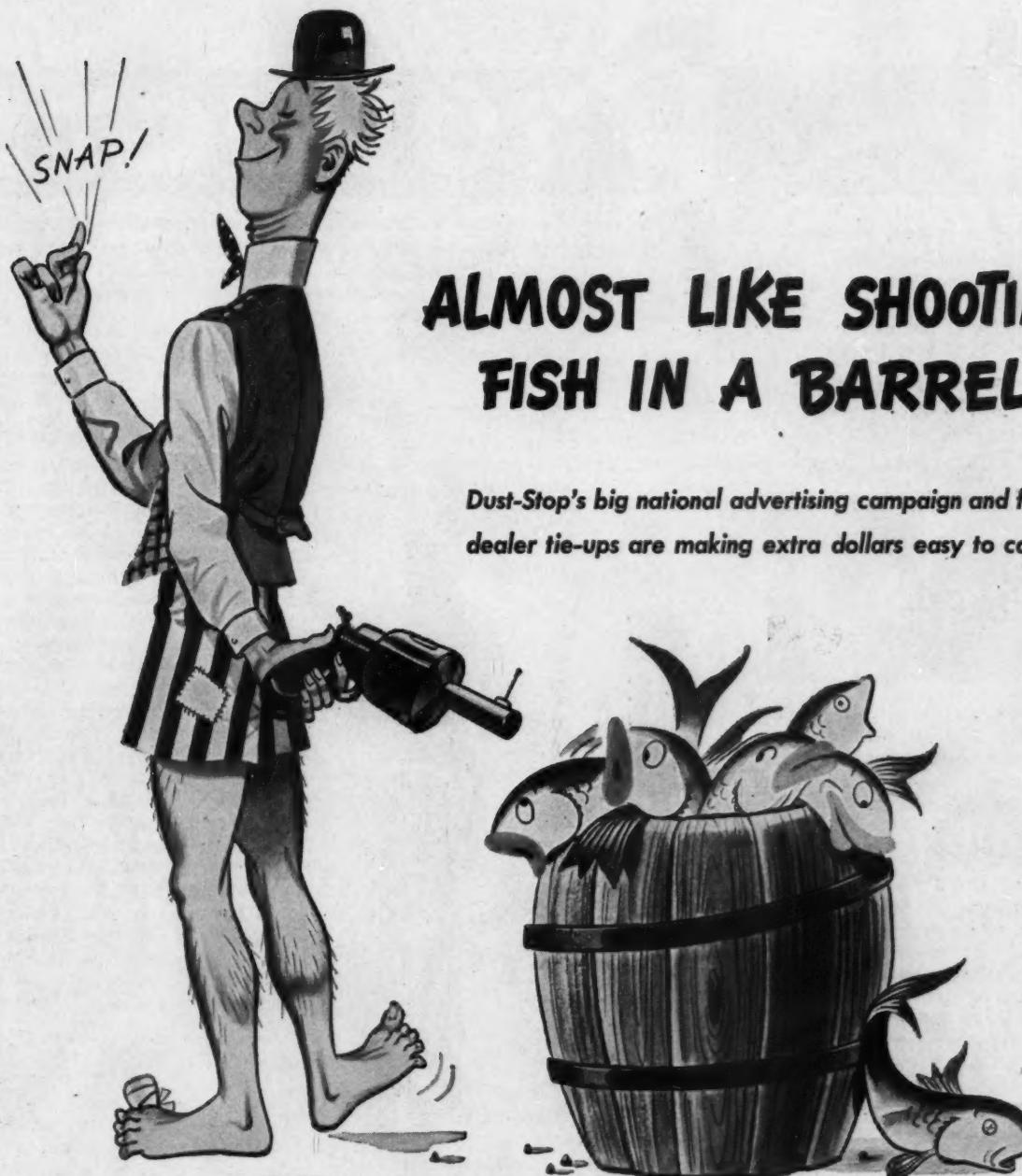
Marshall Van Assche, Secretary.

## CONVENTIONS

Dec. 8-9—National Warm Air Heating and Air Conditioning Association. Silver Anniversary. Hotel Cleveland, Cleveland, Ohio. George Boeddener, Managing Director.

1943

Jan. 25-27—American Society of Heating & Ventilating Engineers. 49th Annual. Hotel Gibson. A. V. Hutchinson, Secretary.



## ALMOST LIKE SHOOTING FISH IN A BARREL

Dust-Stop's big national advertising campaign and free dealer tie-ups are making extra dollars easy to catch

**DUST-STOP\***—the only filters with a national advertising campaign to householders—have already appeared in half and quarter pages in

- ... Saturday Evening Post  
(Sept. Oct. Nov.)
- ... Life Magazine  
(Sept. Oct. Nov.)
- ... Better Homes & Gardens  
(Sept. Oct. Nov.)
- ... American Home  
(Sept. Oct. Nov.)
- ... and there's more advertising to come in these magazines!

Already, more than 33 million people have had the chance to read these advertisements and find out about Dust-Stop. Some of these people live in your community and here's how Dust-Stop is helping you turn prospects into customers:

**Free Newspaper Ads:** These mats furnished to you in 70 and 120-line sizes. They remind furnace owners you sell Dust-Stop. Also they help sell your other services.

**Free Postcards:** Two bright attractive cards imprinted with your name and address. Sales Message ties up with Dust-Stop advertising and sells your other services.

**Free Envelope Stuffers:** Put them in your monthly mailings to established customers. They're great business getters.

**Free 1-Minute Radio Announcements:** Just give script to your local station for spot announcement copy on Dust-Stop and your other services.

**Free Window Display Piece:** Tie up your own advertising with this point-of-sale business-getter.

**Free Furnace Blower Labels:** Paste them on furnace when a job is completed. Serves to remind householder of your name and address when furnace needs further service.

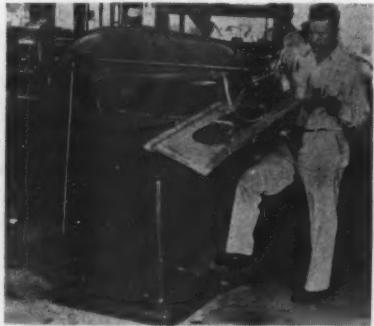
Ask your distributor or jobber about Dust-Stop's biggest and best sales plan, "Pulling Profits out of the Air." Order your dealer helps from him now! *Owens-Corning Fiberglas Corporation, Toledo, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ontario.*

**FIBERGLAS\***  
**DUST-STOP\***  
\*T. M. Reg. U. S. Pat. Off.  
**AIR FILTERS**

# New Products

## 112—Hi-Speed Shears

Libert Machine Company, Green Bay, Wisconsin, offers an improved Hi-Speed shears with foot pedal control which enables the operator to use both hands for guiding the work.



Libert shears cut sheet metal easily and rapidly, need no starting holes, and leave no rough edges. They are suitable for all types of irregular, circular, or straight cutting.

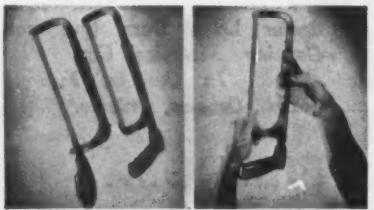
## 113—Hack Saw Frame

Clemson Bros., Inc., Middletown, N. Y., makers of Star hack saw blades, announces a new type of hack saw frame. A cam-action lever-lock sets up and releases the blade quickly.

The frame is made of heat-treated spring steel. A gun metal finish assures high resistance to rust and corrosion.

Handle—either straight (Star No. 30) or pistol grip (Star No. 20)—is of patented design, molded of rust-free, heat-resistant Teelite, a non-conductor of electricity.

The frame may be adjusted for 8, 10 or 12 inch blades by pulling out a single pivot pin to its open position, sliding frame forearm in or out to desired length, and snapping pin back into place. Blade may be re-positioned to face in any of four directions by placing it over either of two sets of fixed pins which are integral with frame.



Each frame is sold complete with one Star unbreakable special flexible blade, individually packed in a metal-reinforced cardboard box. Included is a durable cardboard wall chart carrying instructions and hints on proper

For your convenience a number has been assigned each item. Circle the items in which you are interested on the coupon on page 76 and mail to us.

● Indicates product not listed in 1941 Directory.

△ Indicates manufacturer not listed in 1941 Directory.

selection and use of blades and frames, including a complete blade selection table.

## 114—"Quik-Trik" Holder

Jackson Products, 3162 Wight St., Detroit, Mich., is introducing a new Jackson insulated welding electrode



holder with detachable "stinger," made in three models, all insulated. The lock is positive and may be quickly disengaged.

## 115—Zinc Plated Steel

American Nickeloid Company, Peru, Illinois, has added a new metal to their line of plated metals—electro-plated zinc on steel—as a substitute for nickel, tin, chromium, aluminum, or stainless.

Zinc plated steel is steel which is electro-plated with a coating of zinc. The zinc provides a protective coating to the steel base metal, making a sheet highly resistant to corrosion and rust. A galvanic action takes place between the zinc coating and the base metal which imparts additional corrosion-resistance to the steel. Zinc and steel bond well, forming a coating that is easily workable in manufacture. Zinc-plated steel can be bent, stamped, formed, drawn, soldered, and spot-welded.

The new zinc plated metal is furnished in sheets only—sizes up to 36x 96 in., in a full range of gauges and

temper, in polished, unpolished, and satin finishes. The thickness of the coating can be varied to meet requirements and specifications.

## 116—All-Position Electrode

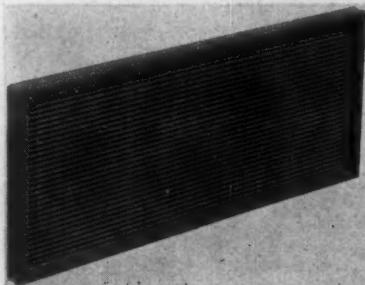
Air Reduction Sales Company, 60 E. 42nd St., New York City, announces a new electrode designed specifically for all-position welding of mild steel with A-C type welding machines in  $\frac{1}{8}$  and  $\frac{5}{32}$ -inch diameters. The Airco No. 230 electrode complies with all requirements of the American Welding Society Classification E6011, American Bureau of Shipping, Group H1G and B1G for A-C and other specifications qualifying for war work.

Physical tests demonstrate that this electrode gives exceptionally satisfactory results. The high quality of deposited metal of the No. 230 is fully comparable to that of the best D-C reverse polarity all-position electrodes. Test results are available.

An outstanding characteristic of this A-C electrode is that average operators have no difficulty in securing good fusion and complete penetration. The finished weld deposit is quite smooth and has a uniform surface contour.

## 117—Sight-Tite Grille

Barber-Colman Company, Rockford, Illinois, announces the Uni-Flo Sight-Tite grille to meet the demand for a ventilation unit which can not be seen through from any angle. The fins are of an inverted V shape and overlap. Diffusers on the edges of the fins add rigidity and a pleasing appearance.



The Sight-Tite grille is useful for ventilation openings in doors, walls, panels, baseboards, etc. It may also be used for exterior fresh air intake openings, because it provides an effective barrier to rain or snow.

Sizes up to and including 36x36 inches. Larger sizes prefabricated in two or more sections and assembled into a common frame.

## New Literature

For your convenience in obtaining copies of new Literature use the coupon on page 76.

### 317—Low Temperature Welding

Eutectic Welding Alloys, Inc., 40 Worth St., New York City is distributing a 36-page and cover booklet entitled "Welding's Greatest Advance," covering Castolin Eutectic Low Temperature Welding—a new joining process (patented) at low temperatures with Castolin Eutectic alloys and their autochemical fluxes, for use with Oxy-Acetylene, gas torches, metallic arc, carbon, induction, resistance and furnace.

Low-temperature eutectic welding produces a weld so fast that a dangerous temperature is not reached, and prevents "burning" or spoiling the physical properties of the parent metal. Low temperature steps up production welding—simplifies and cuts cost of reclamation jobs. Metals of dissimilar gauges can be welded together without "burning" the lighter part or the lower melting metal.

The Autochemical fluxes are chemically adapted to their respective eutectic rods. The fluxes perform a 3-fold duty, besides deoxidizing the metal surfaces: 1—they assist the molten welding alloy to diffuse into the parent metal to as great a depth as possible by an autochemical reaction; 2—they reduce the surface tension on the fluid alloy; 3—they reduce the melting point of the alloys and cause quicker flowing. These fluxes also serve as a temperature indicator for the welder—the correct temperature has been reached when the fluxes become molten.

Castolin Eutectic welding differs from brazing in that alloys very similar to the parent metal are applied, although the technique is like brazing. The weld, therefore, has physical properties closely matching those of the parent metal. For each parent metal, a special alloyed

rod is required, which must melt and bind easily at low temperature and possess color, strength and physical properties resembling the parent metal.

Light gauge sheets, if the edges are carefully cleaned, fitted, and fluxed, may be joined and the joint will be thin, even and smooth, and the process is economical due to its speed and low consumption of filler rod.

The corrosion resistance of the Castolin alloys, compared to solders and brazing rods, has been greatly improved by reducing or eliminating all metals having a low corrosion resistance, such as lead, antimony and cadmium.

#### Methods of Heating

The oxy-acetylene torch is often preferred, due to its quick heating power which will prevent the heat from spreading unnecessarily and the metal to oxidize.

#### Joints

All types of joints (butt, sleeve or lap, chamfered, dissimilar gauges, dissimilar metals) can be used in connection with Castolin alloys as they can be welded in all positions. The Castolin alloys will flow vertically, horizontally or overhead, as they are attracted by capillarity.

#### Operation

A clean joint is necessary for satisfactory results, although a tight-fitting joint is not as necessary as it is for silver soldering. The Castolin rod will fill up all interstices. Zinc, tin, nickel and silverplating do not have to be removed. Lead, cadmium, chromium, oxidizing, etc., must be removed on the joining surfaces.

The Autochemical flux (bearing the same number as the alloy used) is applied cold with a brush on the joint and on the Castolin rod.

The joints are smooth, thin and even, and in most instances do not need any after machining. The welds can be easily galvanized, tinned, electroplated or porcelainized. There is little scale, no burr, and small residue of flux, which may easily be removed by washing with a 10 percent solution of sulphuric acid, or hot water.



### FOR LOW-COST HEATING, QUICK INSTALLATION AND METAL CONSERVATION DIREC THERM UNIT HEATERS STOKER-FIRED

It is a self-contained unit and can be installed or moved in a few hours. No duct work, radiators, or pipes are necessary.

To tend a Directerm requires a minimum of attention. Once the automatic controls are set, they need not be changed. An unskilled man can take care of it... important in these days of labor shortage.

Made in 6 sizes (300,000-1,700,000 BTU).

**AIR THERM**  
MANUFACTURING COMPANY  
706 S. SPRING AVE. • ST. LOUIS, MO.

## New Literature

For your convenience in obtaining copies of new Literature use the coupon on this page.

### 318—Mechanical Details for Installing Diffusers

The Dorex Division of W. B. Connor Engineering Corporation, 114 East 32nd Street, New York City, is distributing "Mechanical Details for Properly Installing Model SR Kno-Draft Air Diffusers."

This is a ceiling type air diffuser combining both supply and return in one device. It is a spun metal.

### 319—Self-Tapping Screws—Booklet No. 475

The Parker-Kalon Corporation, 200 Varick Street, New York, has prepared an illustrated, 20-page booklet on its quality-controlled self-tapping screws. This booklet is a miniature catalog on self-tapping screws and describes: the quality-control routine; the functions and advantages of each type of Parker-Kalon screw; stock sizes and head styles; packing, finishes and special screws. The booklet covers all types of self-tapping screws and illustrations show typical applications.

### 320—Rolling Doors, Sliding and Rolling Grilles

Cornell Iron Works, Inc., 38th Ave. & 13th Street, Long Island City, N. Y., is distributing an 8-page general catalog illustrating all of their upward acting doors in wood and metal, rolling steel grilles and sliding grilles.

The catalog gives complete information on recent designs which substitute wood for the critical metals. In addition to the wood rolling door, the catalog shows wood vertical lift doors in single, two and three sections; Bi-fold doors and wood Canopy doors, with specifications.

Free engineering advice is offered for closure problems.

**PROMPT  
SERVICE  
TO YOU**

Steel Rod

Sharp Piercing  
Point with Four  
Cutting Edges

Rod may be used as  
Punch on Heavy Furnace  
Pipe

Heavy Cast Reversible Blade

BUY ADAMS KNOWN QUALITY

### 321—Electric Welding

Electric Welding, by M. S. Matteson, Instructor of Welding, Boys' Technical High School, Milwaukee, is offered by The Bruce Publishing Company, Milwaukee. Price 50 cents. Size 8 1/4 x 10 1/4 inches, 32 pages, with paper cover. These 24 lessons present fundamental facts. Welding with bare electrodes is discussed first that the student welder can more easily follow the flow of molten metal in the crater and can more easily see the melting and fusing of the base metal with the electrode metal.

These lessons cover striking the arc, bead, polarity, weaving the electrode, building up pads, vertical and horizontal beads, butt welding, angle welding, expansion and contraction of metal, lap welds and fillets, horizontal and overhead lap welds, building up a section of a shaft, laying beads in horizontal rows on a vertical plate, overhead welding, shielded and unshielded arc welding, butt welds with heavily coated electrodes, fillet welding with heavily coated electrodes, vertical lap and fillet weld with heavily coated electrodes, and overhead butt weld with heavily coated electrodes.

#### FOR YOUR CONVENIENCE

American Artisan, 6 N. Michigan Ave.  
Chicago, Ill.

Please ask the manufacturer to send me more information about the equipment mentioned under the following reference numbers in "New Products" and "New Literature." (Circle numbers in which you are interested):

112 113 114 115 116 117  
317 318 319 320 321

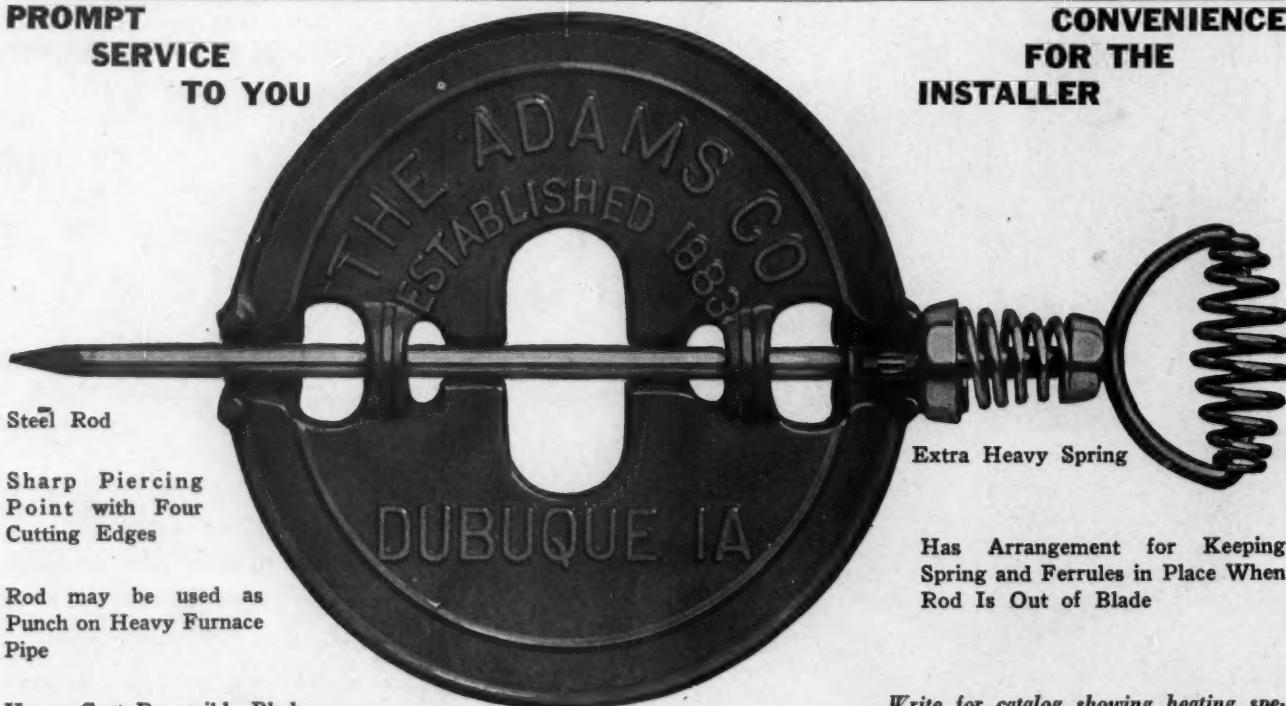
Name .....

Company .....

Address .....

Are you Manufacturer  Jobber  Dealer

**CONVENIENCE  
FOR THE  
INSTALLER**



Has Arrangement for Keeping Spring and Ferrules in Place When Rod Is Out of Blade

Write for catalog showing heating specialties we can now furnish on orders with priority ratings.

**ADAMS** DIAMOND SMOKE PIPE DAMPER  
MANUFACTURED BY  
THE ADAMS COMPANY  
DUBUQUE, IOWA, U. S. A.

## With the Manufacturers . . .

### Penn's Detroit Office Moves

Since November 1, 1942, Penn Electric Switch Co.'s Detroit office, formerly at 2631 Woodward Ave., is located at 7 East Grand, Highland Park Branch, Detroit, Michigan. E. M. Smith, branch manager, announces that the new telephone number is Townsend 85450.

Penn Electric Switch Co., Goshen, Indiana, manufactures a complete line of automatic controls for heating, refrigeration, engine, pump and air compressor service.

### Sturtevant Opens Midwest Plant

B. F. Sturtevant Company, Hyde Park, Boston, Mass., announces the opening of a new branch plant at LaSalle, Illinois. This new plant will serve as the Company's Midwest production center, superseding the factory at Sturtevant, Wisconsin. In addition to the main plant at Hyde Park, B. F. Sturtevant operates three branch plants located at Berkeley, California, Camden, New Jersey and Galt, Ontario, to provide economical transportation facilities in all parts of the country. The new plant is located 95 miles from Chicago. Sidings on both the Rock Island and C. B. & Q. Railroads run direct to the plant. The new plant will be operated by J. F. Gibson as superintendent under the supervision of F. Herlan, general manager of the company's midwestern division.

### Patten Furnishing Acme Repairs

The Acme Heating and Ventilating Company of Chicago has suspended business for the duration of the war. George Ellis, manager and chief engineer, is now employed in the Engineering Department of Consolidated Aircraft Corporation at Fort Worth, Texas. He asks to be remembered to all his friends in the industry and expects to resume business after the war.

Repair orders for Acme horizontal tubular furnaces should be directed to the J. V. Patten Company, Sycamore, Illinois, with whom arrangements have been made for furnishing these repairs promptly.

Arrangements are also being made for furnishing complete Acme heaters on preference ratings in the A-1 class. Direct all inquiries to J. V. Patten Company at Sycamore.

### Personal

Herman W. Somershoe and Jack Leacock are now members of the Armstrong sales organization, according to J. Harry Ebbert, Vice President of The Armstrong Company, 241 South Post Street, Detroit.

Mr. Somershoe will be located at 109 East Washington Lane, Philadelphia, and Mr. Leacock's address will be 2353 Addie Avenue, Overland, Missouri.

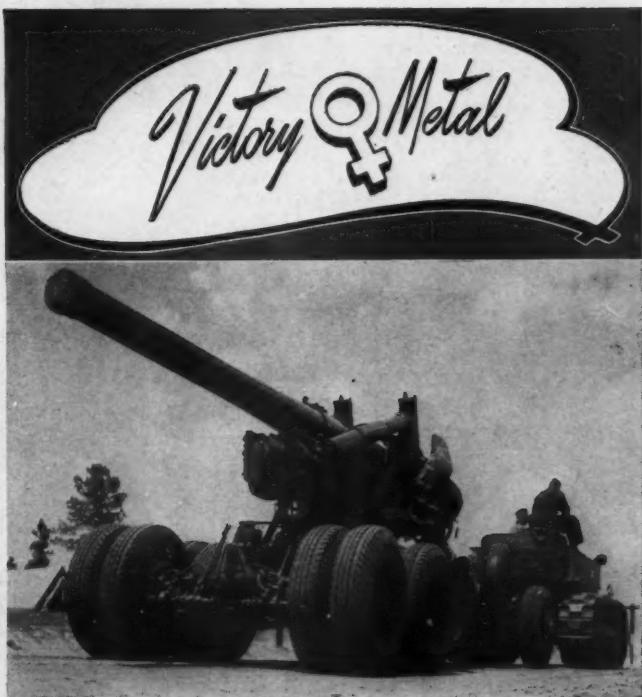
Allen P. Livar has been appointed chief engineer, Airtemp Division, Chrysler Corporation, Dayton, Ohio, according to an announcement by D. W. Russell, president.

Mr. Livar has served Airtemp since 1937 as Chief Heating Engineer and, in his new capacity, will take over the duties of R. G. Wyld who has accepted the commission of Lieutenant, Senior Grade, in the U. S. Navy.

A veteran in the heating and air-conditioning industry, Mr. Livar has made many outstanding contributions in product design, manufacturing methods and field applications. In the Airtemp line, these have included the Airtemp inclined crown sheet steel furnace, ribbon gas burners and numerous refinements in both heating and cooling equipment.

### Obituary

Oscar E. Mobry, 58, of Memphis, Tennessee, a sheet metal instructor at the National Defense School, died in his sleep October 31 at his home—273 Gaston. He owned a sheet metal business at Humboldt, Tennessee, and had been associated with plants in several cities south.



## HUSSEY COPPER

.... AT A THOUSAND

POINTS OF ATTACK!

On the battle fronts . . . on the essential home fronts . . . at a thousand points of application where corrosion can disable and destroy . . . Copper is standing guard. Speed, too, an essential factor in Victory, is being equally well served on America's

production lines by the uniformity and easy workability of Hussey Copper.



HUSSEY

Reading down:

- (1) and (4)—Photos by U. S. Army Signal Corps.
- (2)—Official U. S. Navy Photo
- (3)—Official Photo, U. S. Army Air Forces.

## C. G. HUSSEY AND COMPANY

(Division of Copper Range Co.)

Rolling Mills and General Offices: PITTSBURGH, PA.

Warehouses in Principal Cities

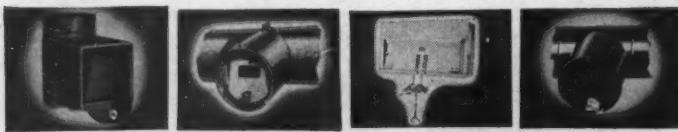
*By the MAGIC  
of Conservation  
He Produces*

## FREIGHT CARS



AND THERE'S MAGIC IN THE SALES  
VOLUME HE BUILDS FOR MATERIAL  
RESTRICTED DEALERS

Field Barometric Draft Controls effect remarkable fuel savings. For that reason we still build them. And for that same reason you can SELL Field Controls—easily and profitably—to offices, schools, churches, homes, stores and factories, in your community. The Field Control line is complete from the largest industrial requirements down to a sensational new Type "K" model for coal, oil or gas-fired domestic space heaters. This complete line of Field Draft Controls can keep your sales volume up! Write or wire today for complete details.



### THESE FIELD CONTROLS CUT FUEL CONSUMPTION FROM 5% TO 25% IN EVERY INSTALLATION

You serve your country, your customer and yourself when you install a Field Control in every heating plant in your territory. Costing but a little, using but a mite of critical metal, they "keep the home fires burning" on less fuel.

**FIELD** CONTROL DIVISION  
MENDOTA, ILLINOIS

## Priority Questions And Answers

(Continued from page 34)

Q. What are the conditions under which a remodeling loan will be granted?

A. To qualify for a loan, a remodeling project must be located in an area where the housing situation for war workers is critical, and must be made with a view to providing living accommodations for war workers. Applicants for loans must certify to the bank or other private lending institutions that for 60 days after his project is completed he will give first call for occupancy to war workers.

Q. Must an owner obtain permission from the War Production Board for remodeling or repair work?

A. WPB authorization is necessary in a remodeling project unless the total cost of the improvement is less than \$200. The WPB must also give priority assistance where the purchase of critical materials is required. Maintenance work and essential repairs that do not change structural design are permitted without WPB authorization. Applications for WPB preference ratings and authorization to begin construction can be filed with local offices of FHA.

## Maximum Price Regulation No. 251

(Continued from page 25)

tain Federal agencies became effective. The total is the maximum price.

Q. How are the maximum prices determined on cost-plus contracts over \$500?

A. Maximum prices in this type of contract will be the sum of these factors: Materials and supplies at actual cost but not in excess of any applicable price regulation; labor at actual cost, but in amount not to exceed labor costs on the basis of the rates in effect in the area of installation on July 1, 1942; other direct actual costs, including costs of subcontracts, margin for overhead and profit, based on a comparable sale or, under certain circumstances, the seller's general experience and that of the industry.

Q. How are maximum prices determined on lump-sum contracts over \$500?

A. Maximum prices in this type of contract will be the sum of these factors: Estimated cost of materials and supplies but not in excess of any maximum price regulation; estimated labor costs on the basis of rates in effect in the area of installation on July 1, 1942; estimated reserve for contingencies; estimated margin for overhead and profit, based on a comparable sale or, under certain circumstances, the seller's general experience and that of the industry.

Q. What is total cost?

A. The total cost under a contract is the sum of all costs incurred by the contractor incident to and necessary for the performance of the contract and properly chargeable thereto.

Q. What is meant by "other direct costs"?

A. Such items as:

1. Rental of equipment.
2. Social Security taxes on labor.
3. Unemployment compensation contributions.
4. Licenses, franchise, permits.
5. Premiums on surety bonds.
6. Workmen's compensation and public liability insurance premiums and fire insurance premiums on scaffolding, forms, equipment and materials.
7. Traveling in connection with expediting materials and equipment.
8. Job foreman, watchman, temporary lighting, temporary sheds and offices, cleaning, removal of rubbish.
9. Telephone and telegraph charges for field offices.
10. Temporary heat and fuel.
11. Other items of similar nature chargeable directly to job cost, such as surveys, wall tests, soil and material test directly related to job, freight and hauling not chargeable directly to any material item.
12. Water for building purposes.
13. Power for building purposes.

Q. What is meant by overhead costs?

A. Administrative costs, such as general office expense, salaries of general office, engineering, legal, accounting, advertising costs, depreciation and depletion of office equipment, auto expense, traveling, association dues, and other fixed charges which usually are apportioned to job cost, social security taxes for office employees, and state and local taxes (other than income taxes).

Q. Are contractors limited to these listings for "other direct costs" and "overhead costs"?

A. No. They may follow their usual practices for these charges.

Q. What is meant by reserve for contingencies?

A. An amount (only if usually figured by contractor) for unforeseen additional costs, such as costs incidental to delays due to weather conditions, failures in delivery of materials, strikes, penalties, productivity of labor, accidents, and for other causes beyond the control of the contractor.

Q. Is carpenter work, such as putting together of trim or stairwork, done at the contractor's shop, chargeable as a direct cost?

A. Yes. Fabrication of parts of the structure if done with the contractor's own forces need not necessarily be done at the site of the job.

Q. Would rental of storage space for materials for a particular job be considered as direct cost?

A. Yes, if the necessity for storage results directly from the job.

Q. In the transfer by the contractor of materials from one job to another, what may the contractor charge for such materials?

A. These should be charged at cost, in no case to exceed the maximum prices at which the material could be purchased under the applicable maximum price regulation.

# Recipe FOR EFFECTIVE BLACKOUT VENTILATION

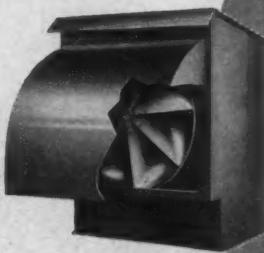
## 1 TAKE STANDARD MODEL ILG POWER ROOF VENTILATOR...

... complete with Ilg Self-Cooled Motor Propeller Fan in weather-tight, galvanized steel penthouse. Wide range of sizes and capacities. Positive and uniform in action, regardless of the weather or wind velocity.



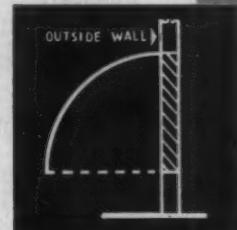
## 2 FABRICATE SHEET METAL BLACKOUT HOODS ON THE JOB...

... to positively prevent light transmission, without obstructing the air being exhausted. Ilg will supply contractors with complete drawings, dimensions and construction data for specific applications upon request.



## 3 ALSO BLACKOUT HOODS FOR FRESH AIR INLETS...

Blackout Hoods properly constructed on the job and positioned near the floor line according to data available from Ilg, run no danger of "short-circuiting" air circulation.



## 4 INSTALL ACCORDING TO ILG'S SPECIFICATIONS, DIMENSIONS and INSTRUCTIONS

If you are figuring on a specific job now, write, wire or phone for free dimension drawings and installation data.



### FREE... Blackout Bulletin

Four-page, colorful bulletin, complete with drawings showing Ilg-engineered blackout ventilation installation in West Coast plant. Pictures complete line of Ilg apparatus used for blackout applications. Get it today!

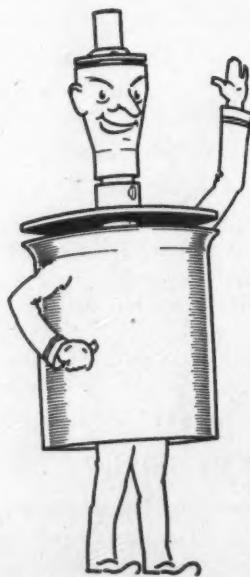
ILG ELECTRIC VENTILATING CO., 2871 N. CRAWFORD AVE., CHICAGO, ILL.  
OFFICES IN 38 PRINCIPAL CITIES

CONSULT YOUR PHONE DIRECTORY



VITALIZED VENTILATION  
AND AIR CONDITIONING  
AIR CHANGE... NOT JUST AIR MOVEMENT!

# "We're Busy Now"



Busy manufacturing **BURNERS** for plants producing 100 octane Gasoline, Toluene, Butadiene, Magnesium, Aluminum and many other warfare products.

But . . . after the war is won we shall again manufacture that Amazing John Zink Floor Furnace.

**BURNERS for INDUSTRY**  
**FURNACES for the HOME**

*Write for Details Now!*

**John Zink Co.**  
**TULSA, OKLAHOMA**

New York — Los Angeles — Atlanta

Q. What charges may be made by a contractor who carries "self insurance"?

A. The actual cost of such insurance, not exceeding the lawful or approved rates of insurance companies, may be included under "other direct costs."

Q. May "small tools" and "non-durable tools" be included under the term *materials*?

A. Yes.

Q. May sundries and supplies be included under the term *materials*?

A. Yes; nails and solder are examples of this.

## REPORTING REQUIREMENTS

Q. Must contracts of \$500 or less be reported to the Office of Price Administration?

A. No.

Q. What, briefly, are the requirements for reporting contracts above \$500?

A. Every such contract entered into must be reported to the nearest district, State, or regional office of the Office of Price Administration.

In the case of lump-sum contracts, a two-fold report is needed: *First*, within 10 days of entering into the contract, a report describing the job and showing estimated costs and margin and the contract price. *Second*, at least 10 days before the anticipated final settlement at the same district, State or regional office, a report listing actual costs. (Estimate sheets or other working papers may be filed as the report.)

In the case of cost-plus contracts, only one report is needed. To be filed within 10 days of entering into the contract; it must describe the job, give an estimate of costs and include a statement of margin.

Q. What records must be retained by the seller?

A. The seller shall keep available for inspection by Office of Price Administration representatives records for each transaction, showing the name of the purchaser, the date of the transaction, a description of the commodities and services involved and a detailed statement of the method by which the maximum price was calculated, together with all such records as he has customarily kept.

Q. Must the seller give his customer a certificate of compliance with the regulation where the contract is for less than \$500?

A. Only when it is demanded by the purchaser.

Q. Are these written certificates of compliance with the regulation necessary on contracts of \$500 or more?

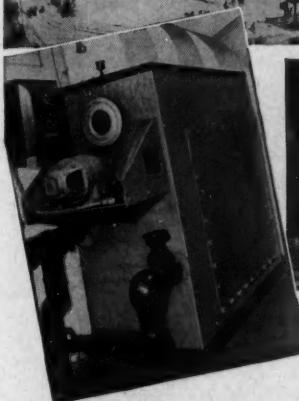
A. Yes, the seller must provide them in these cases. Duplicates of these certificates must be filed with the nearest district, State or regional office of the Office of Price Administration.

Q. What are the provisions for licensing?

A. Any contractor affected by the regulation is automatically licensed on and after November 5 as a condition of doing business.

Q. Is it necessary to register licenses?

A. No. The Office of Price Administration may issue definite requirements in the future.



(Above) One of the seven Hotel Statler, Buffalo, kitchens equipped with AIR-MAZE Greastop panels. • (Left) One of the eight Air Conditioning Machines in which AIR-MAZE Air Filter Panels are installed.

## HOTEL STATLER, Buffalo, is AIR-MAZE Protected

These washable, all-metal air filter panels contribute to comfort, health, and safety of Statler guests and employees

• Famous for its ideals of service, Hotel Statler overlooks no detail contributing to the well-being of its guests and employees.

In Buffalo, Hotel Statler's seven kitchens are equipped with AIR-MAZE Greastop filter panels to collect entrained grease, thus eliminating fire hazards. Besides protecting against fire, these Greastop panels also promote kitchen sanitation, comfort and efficiency. In this same hotel AIR-MAZE filter panels, installed in its eight air conditioning machines, insure clean, pure air for the comfort and health of grateful guests. Write us regarding your filtration problems.

**AIR-MAZE CORPORATION**  
5130 Harvard Avenue, Cleveland, Ohio



## ARMSTRONG HEARTILY ENDORSES THE GOVERNMENT'S NATIONAL FUEL CONSERVATION PROGRAM

### 1. TO INSPECT AND ADJUST HEATING EQUIPMENT

- THARCO FURNACE CEMENT for recementing furnaces and sealing the unit against air and gas leaks.
- ARMSTRONG'S VICTORY FURNACE LINING a plastic refractory recommended for use in keeping the heating plant in service only when a replacement firepot is not available. This is offered as a victory substitute—not a permanent remedy.

### 2. TO INSULATE WALLS, AND ROOF OR ATTIC

- ARMSTRONG'S OIL ROOFING CEMENT for sealing around roof flashings.

### 3. TO INSTALL STORM WINDOWS AND DOORS

- ARMSTRONG'S ARM-GLAZE, the elastic glazing material which, due to its permanent elasticity, eliminates the old putty troubles. To make your furnace service complete, recommend this to the homeowner.

### 4. TO WEATHER STRIP AND SEAL AIR LEAKS

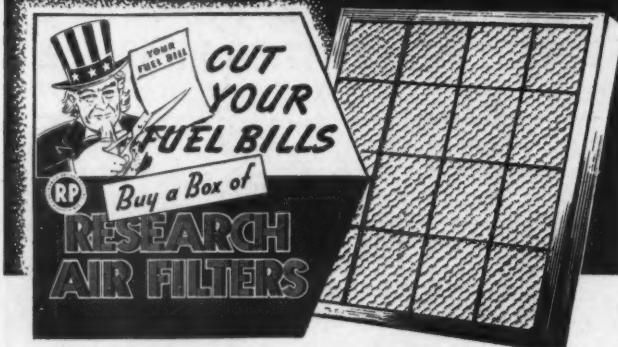
- ARMSTRONG'S CAULKING COMPOUND (Both gun and knife). Make your furnace service more complete by rendering this type of service. Due to shortage of guns, we suggest the knife grade because it can be installed with simple tools such as a putty knife, trowel, or even by hand.

\*YOUR JOBBER CAN SUPPLY ALL THE ABOVE  
ARMSTRONG PRODUCTS

THE KEYNOTE OF VICTORY IS ECONOMY — REPAIR  
ONCE AND WELL TO SAVE FUEL—MONEY—LABOR

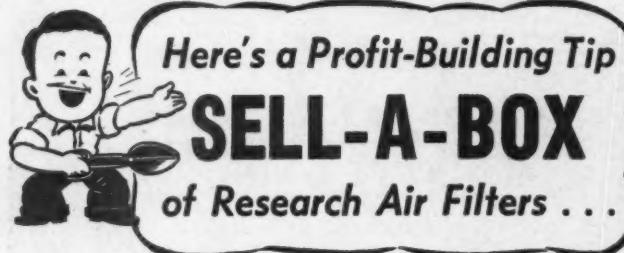
**THE ARMSTRONG COMPANY**  
DETROIT DALLAS CHICAGO

Get this **Display FREE!**



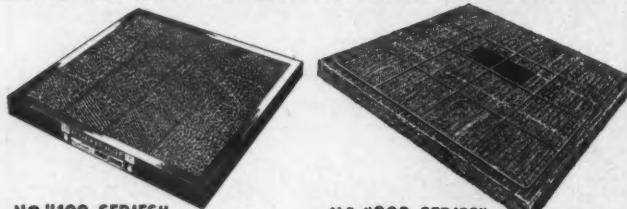
## Help Your Customers Save Fuel This Winter!

The easiest, quickest way for your customers to cut fuel costs is to change dirty filters . . . prevent heat being lost up the chimney. Feature RESEARCH AIR FILTERS . . . specified by leading furnace manufacturers.



Your customers will change filters more often, use less fuel if they BUY A BOX OF RESEARCH AIR FILTERS. Increases your profit, cuts down deliveries.

### The Two Famous Research Air Filters



NO. "100 SERIES"

**Disposable type**, fiber frame. Patented Honeycomb mesh catches dirt with minimum restriction.

NO. "200 SERIES"

**Replaceable type**—only filter pad need be changed when dirty. Self-seal prevents by-passage of air. Only filter with Rip-Clean feature.



**RESEARCH  
PRODUCTS CORP.**

*Madison, Wisconsin*

### On Our Industry's Front

(Continued from page 31)

of this year to match available supplies, it was found necessary to reduce requests by companies operating under PRP from a moderate amount in the case of direct military items to a substantial amount in the case of less essential products, and only relatively small quantities of materials in addition to those already allotted are available for distribution.

The instructions for filling out the application forms for supplemental authorizations direct that a separate PD-25F be filed for each class of product covered by the authorization on PD-25A. Applicants must submit a covering letter explaining in detail the purpose for which additional material is being requested, indicating whether it is for use or receipt, as indicated on the PD-25A authorization, and whether an appeal is being made for permission to divert quantities already authorized for use in one product to the production of another.

We understand some furnace manufacturers have been able to obtain material beyond their PRP allotments by submitting proof of war worker houses requiring furnaces for which no furnaces are available.

### Government Construction Stopped

**W**AR PRODUCTION BOARD, has notified heads of eight governmental agencies it will revoke priority assistance to a large part of non-military construction for the Federal Government.

Facilities and construction, including many projects not related to the war effort, programmed for 1943, with the carry-over of uncompleted 1942 projects will absorb between one-fifth and one-fourth of the total war effort. The aggregate demand of such projects for materials, labor, transportation, manpower, and technical and engineering services is so great as not only to jeopardize the various military and essential civilian production programs in general, but to force the most essential war projects dangerously behind schedule.

Experience has indicated that this situation cannot be effectively controlled merely through granting low priority ratings. Unessential projects must be stopped.

The contemplated construction program for 1942 and 1943—including building, equipment and machinery—is estimated at approximately \$33.8 billion. Of this amount about \$17.8 billion is scheduled for completion in 1942, with about \$16 billion contemplated for 1943. It is in the latter volume that most of the reductions must be made.

During the first eight months of this year about \$11 billion of construction was completed. The volume in August, the latest month for which figures are complete, was \$1.8 billion—an annual rate of nearly \$22 billion.

A present reduction in Government construction to make way for war production does not mean that such projects are to be permanently dropped. On the contrary, there will be special need for many such public works in the period following the end of the war to help take up the shock of reverting to peacetime economy. Works now deferred because of the war can with benefit be resumed at that time.

# SKILSAW TOOLS HELP AIRCRAFT PRODUCTION HIT A NEW HIGH!

EVERY MAN  
COUNTS FOR MORE  
USING SKILSAW TOOLS!

SKILSAW BLOWER operated at 130° for drying  
glued joints hard and fast in ANY WEATHER!

SKILSAW speeds cutting of crating lumber. Saves time opening cases. Protects contents and salvages materials for re-crating or other uses (See left)

When America's aircraft industry started to zoom it started adding SKILSAW TOOLS in quantity . . . to speed up countless operations . . . to get more work done on every shift . . . to build *far faster* the planes that are flying to Victory! Today those SKILSAW TOOLS (and thousands more) are helping production **SOAR** to heights undreamed of only a year ago.

Are there jobs in your shop that should be done quicker? Talk to your distributor about the big complete line of SKILSAW TOOLS. He can tell you what models will help you most . . . and he'll gladly prove it with a demonstration on your own work.

SKILSAW, INC., 5029 Elston Ave., Chicago

New York • Boston • Buffalo • Philadelphia • Cleveland  
Detroit • Indianapolis • St. Louis • Kansas City  
Atlanta • New Orleans • Dallas • Los Angeles  
Oakland • Portland • Seattle • Toronto, Canada

**SKILSAW** PORTABLE ELECTRIC **TOOLS**  
\* MAKE AMERICA'S HANDS MORE PRODUCTIVE \*

SKILSAW DISC SANDERS for all  
metal cleaning, filing, wire brushing, weld  
grinding, buffing and polishing

SKILSAW BENCH GRINDERS  
spotted through plant to provide quick  
sharpening of bits, tools, twist drills, and  
for grinding small parts.

SKILSAW BELT SANDERS sand faster  
on wood planes and in wood patterns  
shapes of metal plane plants, do all their  
finishing better and quicker

# INDEPENDENT Baseboard Registers with Bendable Fins



No. 91 One-piece style

No. 92 Two-piece, with removable grille

★ Styled by one of the foremost industrial designers, this register is a work of art as well as a model of high efficiency. Its simple artistic lines express streamline design at its best and harmonize with the furnishings of the modern home. Fins are regularly set to deflect air flow slightly upward; but being easily bendable, they can be adjusted to direct air flow straight outward or downward, as required. Scientific design affords large open area with minimum air resistance.



Send for Catalog 41-G

Always Leading—Always Progressing

**THE INDEPENDENT  
REGISTER CO.**

3747 E. 93rd STREET • CLEVELAND, OHIO

# ***FIRELINE to the rescue!***



NOW is the time to rescue the damsel. You don't have to wait until next spring—you don't even need new firepot castings. With Fireline, you can repair the cracked firepot and stop those gas leaks without taking down the furnace—and have the fire going again in a few hours.

A Fireline lining will seal all cracks and holes in the firepot castings. And it will serve better than new castings, producing a hotter fuel bed. Your customer will get MORE heat from LESS fuel this winter.

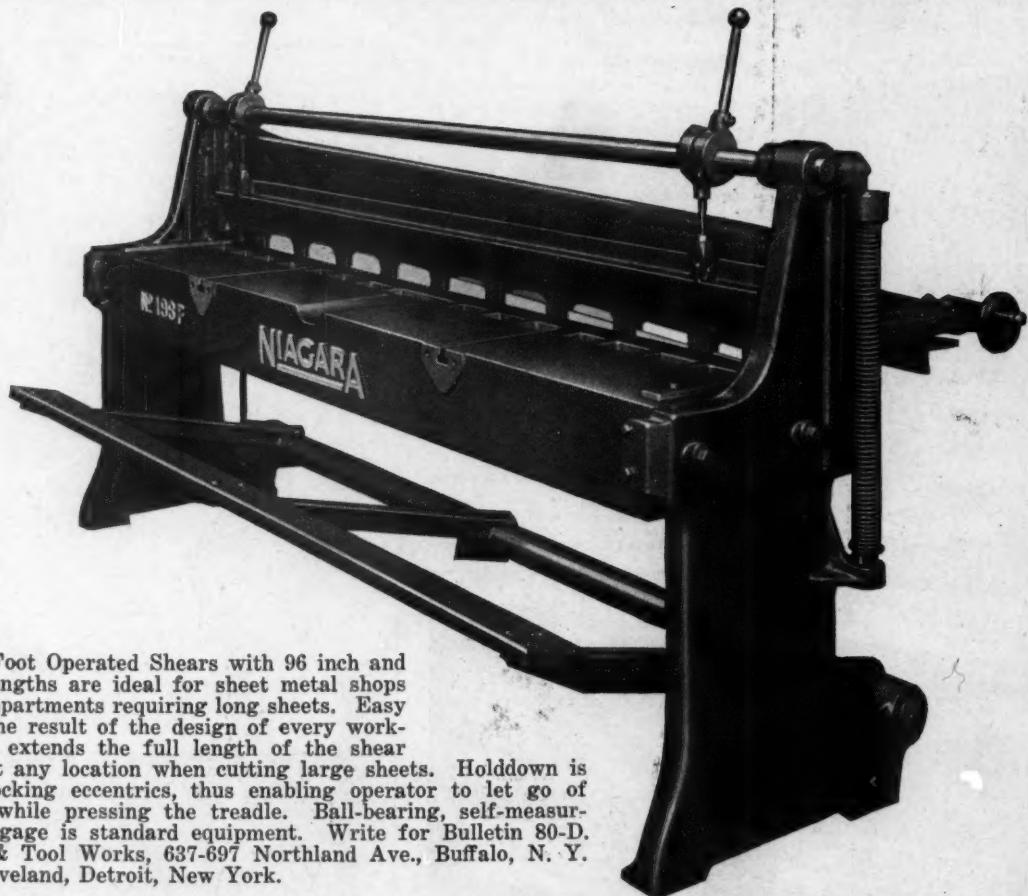
Even if the firepot is not burned out, you should sell Fireline to protect the good castings and save fuel in the bargain. You make more than 100% profit on each job and can keep busy all winter long. This is the kind of a proposition on which you can make money under present conditions, and hold your prospects for new furnaces until after the war.

The average 22 to 24 in. furnace requires 100 lbs. of Fireline for a complete lining. Your jobber stocks Fireline in 50 and 100-lb. drums; also in 5 and 10-lb. cans for patching.



Let us show you how to go after this business—right now. Write for prices, literature, and further information.

**FIRELINE STOVE & FURNACE LINING CO.**  
1816 Kingsbury St. Chicago, Illinois



Niagara 18 Gage Foot Operated Shears with 96 inch and 120 inch cutting lengths are ideal for sheet metal shops and maintenance departments requiring long sheets. Easy foot operation is the result of the design of every working part. Treadle extends the full length of the shear and is accessible at any location when cutting large sheets. Holddown is operated by self-locking eccentrics, thus enabling operator to let go of holddown handles while pressing the treadle. Ball-bearing, self-measuring, parallel back gage is standard equipment. Write for Bulletin 80-D. Niagara Machine & Tool Works, 637-697 Northland Ave., Buffalo, N. Y. District offices: Cleveland, Detroit, New York.

## Retail Sales Decline Forecast

A DECLINE in total retail sales of 17 per cent for the first half of 1943, compared with the same period this year, is forecast by the Commerce Department.

The losses will be uneven in different kinds of business, the Department predicts. The used and new car business is expected to drop more than 80 per cent; household appliances and radios, 65 per cent; heating, plumbing, paint and electrical sales, 50 per cent; filling stations, 40 per cent; lumber and building materials, 40 per cent; farm implements, 35 per cent; hardware stores, 25 per cent; shoe, clothing, department and variety stores, 10 to 20 per cent.

Some 350,000 stores, with sales of \$10,000 a year or less, which is the nation's independent retail average, are included in the lines in which a declining trend is predicted.

Small stores are at a disadvantage because they have not increased their inventories as much as the larger stores. Thus, they are less able to maintain sales by drawing on stocks.

## First Quarter 1943 PRP Forms

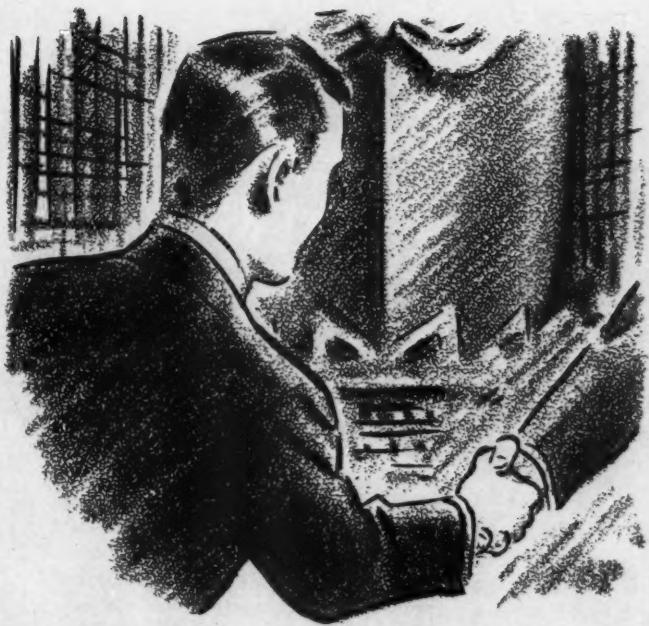
PRODUCTION Requirements Plan application forms (PD-25A) for the first quarter of 1943 are being mailed to manufacturers by the War Production Board.

Instructions for filling out the new forms are contained in a separate bound booklet. An innovation in this booklet is a Fabricated Product Classification List, which divides the more important fabricated items into approximately 400 groups. This listing is expected to be of real assistance to applicants as well as to the WPB in processing applications. It provides standard terminology for designation of the products which must be entered under Section B of PD-25A. Applicants are requested to use the terminology of the list wherever it is applicable, and are warned not to combine products which fall into more than one of the listed classes. Shipments and requirements for a line which falls into two or more classes must be divided. Also, an applicant should be careful *not* to use the terminology of the classification list unless it is literally true of a given product. When this is not the case, the applicant's own definition should be written in.

The information requested in Section B now includes, in addition to reports of shipments during the second preceding quarter, and estimated shipments for the quarter January to March, 1943, a report of rated orders actually on hand for shipment during that quarter. This will provide PRP analysts with a basis with which to compare the applicant's estimates of his needs during the first three months of 1943.

Section C calls for an analysis of total shipments by purchasers' symbols. The shipments to be identified are those for the Army (except aircraft), Navy (except aircraft), Lend-Lease and other foreign purchasers, and total aircraft.

A new Section D calls for a report of the total dollar value of all unfilled rated orders, as of the most recent available date, whether or not these orders are



## Congratulations HENRY KAISER on another smart move!

America and the rest of the world marvel at the way you get things done NOW.

Faced with the task of building ventilating systems for your ships in record time, you naturally put Lockformers on this sheet metal job.

And you found that one man and a Lockformer could make more Pittsburgh Locks than 16 men with 8 hand brakes!

A smart move,  
Henry Kaiser, and  
quite typical of  
your great genius.  
Congratulations,  
sir!



**The LOCKFORMER Co.**  
4617 ARTHINGTON STREET, CHICAGO, ILLINOIS

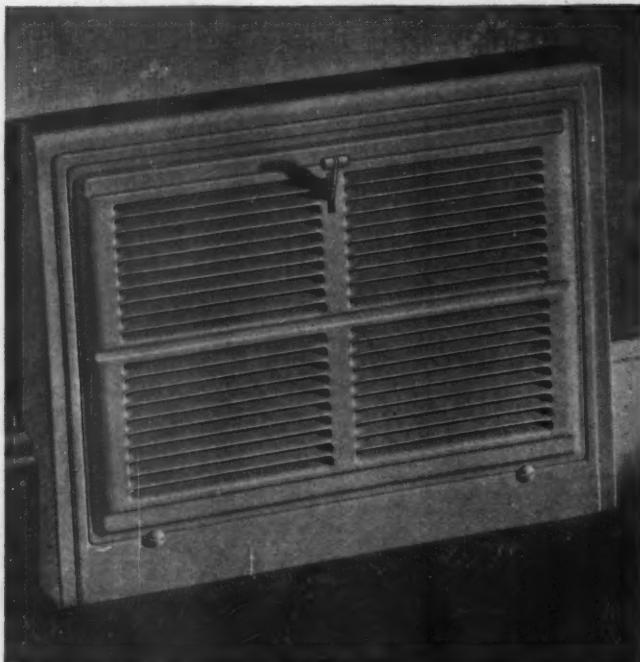


Yes! Auer Heat-Rite Registers are low-cost registers and ideal for small home purposes. They are exceedingly well-built and substantial—as well as clean-cut and modern in appearance. The Heat-Rite has a fin type grille with the slightly downward directional flow appropriate for most purposes, but easily adjustable with turning tool for other directions. It has ample open area and is very easy to install.

Besides being a distinctive and efficient register for your new jobs, it is also highly adaptable for remodeling or conversion purposes. It is made in baseboard or wall register types and baseboard intakes. Furnished in DuraTone lustrous metallic finish as well as standard finishes, and priced the same as ordinary gravity registers.

Ask for your copy of latest Auer Register Book showing all models for air conditioning and warm air. Special Grille Catalog "G" also sent on request.

**THE AUER REGISTER CO.**  
3608 Payne Ave. CLEVELAND, OHIO



scheduled for shipment during the January-March quarter. The volume indicated in this section will be considered in determining the number of advance quarters to be authorized under Section H.

Section E, in which must be reported use of all materials shown on Materials List No. 1, contains a new column (5) in which the applicant is to list obsolete material, or sizes, shapes etc., which he can no longer use in his plant. This column is headed "Nonusable," under the statement of inventory on September 30, 1942.

Section F, which calls for reports on materials other than those on Materials List No. 1, now contains a list, Fabricated Items List No. 2, naming seventeen specific assemblies and sub-assemblies. Any class of product included in this list, which the applicant uses either in production or for maintenance, repair and operating supplies, should be reported on the appropriate lines, using dollars as units of measure.

The inclusion in Section F of products used for repair, maintenance and operating supplies, in addition to those listed for these purposes in Section E, removes from Section G a report of these materials.

Section G is now what was Section E part 2 of the 1942 fourth quarter application. It provides a means for showing separately the requirements of materials for production of each class of product listed in Section B. It is to be completed by those companies that produce different classes of products but are unable, owing to the nature of their inventory records, to file separate forms for each.

### Industrial Stokers Released

#### T

To facilitate conversion of industrial heating and power plants from oil to coal, production and delivery of industrial-type stokers have been placed under a simplified scheduling program by an amendment to L-75. The program, in effect, does away with the previous requirement of an A-10, or higher rating for production of industrial stokers.

The new procedure, instituted through Order L-75 as Amended, establishes these requirements:

Persons desiring to purchase an industrial-type stoker, having a grate area of 36 square feet or less and handling boilers from 300 H. P. down, must file application for WPB authorization on Form PD-668. When authorization is granted, such orders will be considered "rated orders" as defined by Priorities Regulation No. 1. This provision is effective immediately.

Deliveries to the Army, Navy, Maritime Commission and the War Shipping Administration are exempt from provisions of the amended order until November 23.

Production of domestic stokers (burning 60 pounds of coal and less per hour) had previously been cut off, but it is pointed out that there is no restriction on purchase of those still in dealers' stocks.

### Dehydrators, Packers Get Preference

#### F

Fruit and vegetable packers, fish packers, dehydrators and other firms preparing foods for the armed services or civilian use are assigned AA-2X ratings under an amendment to Preference Rating Order P-115 for maintenance and repair work at their plants. AA-5 and AA-3 ratings are also assigned by the amendment for certain other materials.

# ATTACK WITH THE ARC!

How can your war business be improved? How can your production be speeded? How can your materials be conserved?

Lick problems like these with Lincoln arc welding! Here are typical jobs:



**Smoke Stacks** for army cantonments. Made from 14 ga. black iron. Joints are plain butt welds made in one pass with  $\frac{1}{8}$ " "Fleetweld 7". Saves lapovers and makes stronger construction than former method.



**Jacks** for buffing wheels. These dust collectors are fabricated from 14 ga. black iron. Note simplicity of joints and attachments such as hinges. Strong, neat and cheap.



**Weapon for Attack.** "Procedure Handbook of Arc Welding Design & Practice." Big new 7th edition. Latest information on all phases of arc welding to enable you to lick problems. 1308 pages. 1810 illustrations. A \$5.00 value for only \$1.50 postpaid in U. S.

**THE LINCOLN ELECTRIC COMPANY**  
Department A  
Cleveland, Ohio



Picture of a  
**HEATING APPLIANCE  
DEALER**  
Making a Permanent  
Friend . . .

The friends you made and the good will you built in years past are your best guarantee of business today — and in postwar markets.

Keep these friends! The DEPENDABILITY of A-P Oil Controls on the Heaters you sold are helping you right now. But YOU can do more! Keep in touch with them through regular calls — inspecting, cleaning, repairing, adjusting their Heating Units so they can cooperate in our Nation's Oil Conservation needs . . . And continue to enjoy comfortable heat on a minimum of fuel oil.

This is good business today. And tomorrow, when new Heaters are again available, you'll have an active and friendly "prospect list" — families who know your concern for their comfort, and your record of fine service.

Then, A-P Oil Controls will be better than ever, too, carrying on their tradition of accuracy and efficiency — increased by today's continuing research and development.

**AUTOMATIC PRODUCTS COMPANY**  
2452 NORTH THIRTY-SECOND STREET  
MILWAUKEE, WISCONSIN

 **DEPENDABLE**  
Oil Control Valves

# HERE'S THE SPOT to get YOUR FURNACE REPAIR PARTS

Need repair parts in a hurry? Then order them from Northwestern . . . for Northwestern has a complete stock on hand and can supply parts for all makes of furnaces IMMEDIATELY.

When you order from Northwestern you speed up repairs, for there is no waiting for parts . . . and every part fits perfectly and can be installed in minimum time. Northwestern parts are built to last . . . to give your customers years of trouble-free service.

Send for complete catalogue NOW.

## NORTHWESTERN STOVE REPAIR CO.

662 W. Roosevelt Road, Chicago, Ill.

Statement of the Ownership, Management, Circulation, etc., Required by the Acts of Congress of August 24, 1912, and March 3, 1933  
Of American Artisan, published monthly at Chicago, Ill., for Oct. 1, 1942.  
State of Illinois, County of Cook, ss: Before me, a Notary Public in and for the State and county aforesaid, personally appeared F. P. Keeney, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the American Artisan and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Keeney Publishing Company, Chicago, Illinois.

Editor, J. D. Wilder, Chicago, Illinois.

Managing Editor, J. D. Wilder, Chicago, Illinois.

Business Managers, F. P. Keeney, Chicago, Illinois.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Keeney Publishing Company, 6 N. Michigan Ave., Chicago, Illinois.

Stockholders: F. P. Keeney, Chicago, Illinois; W. J. Osborn, Fairfield, Conn.; R. Payne Wettstein, Chicago, Illinois; Chas. E. Price, Chicago, Illinois; Robert A. Jack, Cleveland Heights, Ohio.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities, are: (If there are none, so state.)

None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is.....

(This information is required from daily publications only.)

F. P. Keeney,

Business Manager.

Sworn to and subscribed before me this 16th day of September, 1942.

Grace E. Waymire

(My commission expires February 10, 1946.)

## WHITNEY-JENSEN PRODUCTS 30 YEARS EXPERIENCE

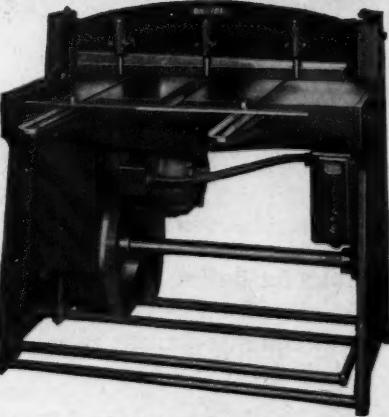
NO. 72 SERIES

### POWER SQUARING SHEARS

36" and 42" sizes

14 and 16 gauge

Fast-action small shears for production work or jobbing shops. Features include a high speed of 180 strokes per minute and a new blade adjustment that is simple, positive, and accurate.



### AIRCRAFT RIVET SQUEEZERS



Standard, Alligator, Crab, Snake Head, and Pelican types for aluminum rivets up to 1/8". Write for Whitney-JENSEN Aircraft Tools Catalog.

## WHITNEY METAL TOOL COMPANY

91 FORBES ST. • ROCKFORD, ILL.

## Kruckman—New Controlled Materials Plan

(Continued from page 33)

to help in preserving the civilian economy. The success of the design depends jointly upon the industrialists of the civilian economy and the men here in Washington who operate the Plan. The Book as written under Mr. Eberstadt's supervision definitely states that the WPB Vice Chairman—Eberstadt—may provide materials for small manufacturers or those using small amounts of controlled materials. Apparently the extent to which this authority may be exercised depends upon the proper requirements actively pressed by non-War producers, and supported by the non-War Smaller Business agencies which are part of the WPB.

The Committees in the House and the Senate engaged in furthering the claims of Smaller Business may be expected to attack with energy this suggestion in the Plan if Smaller Business itself shows some intelligent persistence in going after its wants. Many discussions of the Plan miss the point that its primary underlying purpose is to **SAVE** materials. It starts from the premise that we have not enough of practically anything, and that we must save materials during the process of their use, not that we must ultimately save materials by denying the actual materials to those who really need them. Eberstadt and his associates came to the conclusion that most of our trouble has arisen from improper use of the materials. That does not mean they felt that the materials were being misused deliberately or dishonestly. The planning of their use was fundamentally wrong.

## H&C DAMPER REGULATOR SETS



No. 40 1/4 S

**ECONOMY TYPE.** Three ways to install: 1. With lock nut but without handle (for tamper-proof setting). 2. With handle and lock nut. 3. With handle and wing nut. Nut prevents damper vibration. Handle always indicates position of damper (Patent 2,146,142). Furnished with handy snap end bearing. Complete set in carton. Made only with  $\frac{1}{4}$ " bearings.

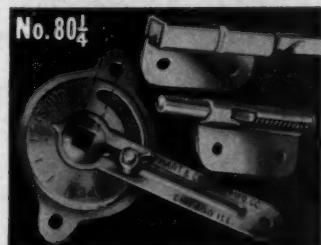
LIST PRICE.....No. 40 1/4 S.....\$0.30



No. 50 1/4

**BRACKET TYPE.** Nut holds damper securely, preventing vibration. Handle which indicates position of damper, may be left in place permanently or removed after adjustment (to prevent tampering). Snap End Bearing, on  $\frac{1}{4}$ " size, Solid Bearing on  $\frac{3}{8}$ " size. Each set individually packaged.

LIST PRICES.....No. 50 1/4.....\$0.40  
No. 50 3/4.....\$0.60



No. 80 1/4

**DISK TYPE.** Like all H&C sets, this set is equally adaptable to splitter or regular dampers. Snap End Bearing on  $\frac{1}{4}$ " size, Solid Bearing on  $\frac{3}{8}$ " size. All parts are rust proofed. Complete set in carton.

LIST PRICES.....No. 80 1/4.....\$0.40  
No. 80 3/4.....\$0.60

See your jobber or write for literature and sample.

**HART & COOLEY MANUFACTURING CO.**  
HOLLAND, MICH. • PHILADELPHIA OFFICE: 1600 ARCH ST.

**H&C QUALITY**  
**GOES HAND IN HAND**  
**WITH LOWEST COST!**

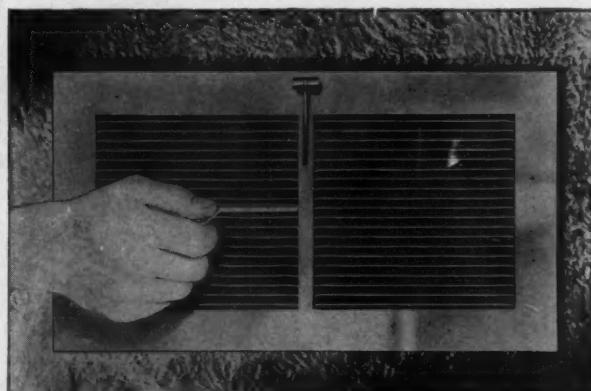


### No. 69 AIR CONDITIONING REGISTER

This register will enable you to meet and beat the stiffest kind of price competition. It's built like the finest, priced with the most inexpensive. A superior register for installations in which directional control of the air flow is not essential.

If upward or downward control of the air flow is desired, investigate the No. 74 Design shown below—an excellent flexible-fin type register with reinforcing center mullion and positive valve. Costs only a few cents more per opening than the cheapest non-directional register.

The H&C line includes the finest registers for every type of installation; competitively priced, backed by exceptional service.



### No. 74 LOW COST DIRECTIONAL AC REGISTER

## HART & COOLEY MANUFACTURING CO.

Warm Air Registers • Air Conditioning Grilles • Damper Regulator Sets • Dampers • Chain • Pulley

HOLLAND **H&C** MICHIGAN

Philadelphia Office 1600 Arch Street

Western Representatives Godfrey Ringer Co. Los Angeles San Francisco Portland Seattle Salt Lake City Denver

# KEEP 'EM FIRING with GarWood

- ★ Self-Contained Forced Warm Air Automatic Oil-Fired Heating Units. (from 50,000 to 500,000 B.T.U./Hr.)
- ★ Industrial Space Heaters up to 500,000 B.T.U./Hr.
- ★ Boiler-Burner Units up to 25 HP.

Some Distributors and Dealers are receiving Government business for Heating Equipment. If you are one of those who are called upon to submit estimates, heating plans and surveys, we suggest you enlist our cooperation and our engineering service.

Write today for "ENGINEERING STANDARDS"—this valuable 72-page book on Engineering, Installation and Operation of Heating Systems, sent free on request to Sheet Metal Contractors and Dealers, Engineers and Architects. This offer made for a limited time only. Address reply to Dept. 14

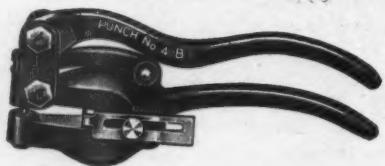
HEATING DIVISION  
**GAR WOOD INDUSTRIES, INC., DETROIT**  
Protect Freedom—Buy War Bonds

They found what we all know—that the priority system enabled Army, Navy, U. S. Maritime Commission, Lend-Lease, manufacturers, fabricators, all those who had proper rights to materials, to secure quantities and volumes often excessive that they could immediately transform into the things required. They also found that all elements of the War economy were manufacturing and fabricating some things they could not possibly use for eighteen months or more. Moreover, they found that many separate things in an assembly, say, for instance, a tank, were produced in unequal quantities. Apparently they discovered that in all honest intent many parts of an assembly were manufactured in such surplus that the amount of material consumed would have permitted other industries, which were closed down, to function normally.

They tell you here that apparently the loosely organized WPB failed to remember that the metal needed eighteen months from now is frozen in stored unused parts and thus caused tragic shortages elsewhere. The point they make is that if these paralyzed inventories in their materials state had been spread over all the national economy we might have avoided much trouble; and eighteen months from now we might have supplied the immense tonnage of fabrications now waiting to be used, by making these same fabrications out of metals now being dug out of the earth.

If the Plan works as it is intended to work neither Army, Navy, Lend-Lease or any one else will receive supplies of scarce materials on what they estimate their requirements may be in theory, during some protracted future period; but they will receive their supplies on the basis of what they can demonstrate practically their need will be within a reason-

## A REAL *Time Saver*



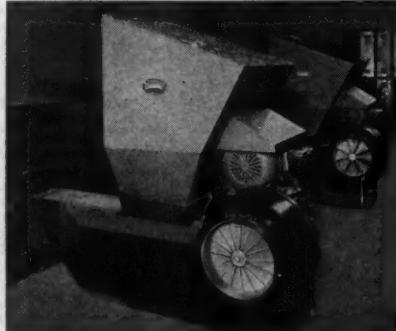
## The No. 4B PUNCH by Whitney

This punch is accepted by leading contractors and dealers as a real time-saver in the shop and on the job. Men who use it every day know it can't be beat for clean, fast punching. Has a capacity of  $\frac{1}{4}$ " through 16 ga., weight 3 pounds,  $8\frac{1}{2}$ " in length, depth of throat, 2". Complete tool includes three punches and three dies of specified sizes with die adjusting key.

W.A.   
**WHITNEY MFG. CO.**  
636 RACE ST. ROCKFORD, ILL.

## HIGH RATIO OF POUNDWEIGHT / H. P. DEVELOPED for Long Life with Minimum Service Attention and Minimum Maintenance Cost!

Heavy, rugged construction of FREDERICK underfeed screw type stokers is designed specifically for the rigors of continuous, hard service in industrial uses. Time-out for repairs, maintenance manpower consequently is very infrequently needed.



Hopper and Bin  
Feed Models ...  
200 to 850 Lbs./Hr.

Available with either  
clinker type burners,  
or with side dumping-grates.

The mechanical simplicity of their construction assures long, "bug-free" operation. Ask about them. No obligation whatso-ever.

**Frederick**  
INDUSTRIAL  
**STOKERS**

THE FREDERICK IRON & STEEL CO.  
Eighth Street, Frederick, Maryland  
"Builders of Good Stokers for Over 24 Years"

able period of time immediately ahead.

This budget and schedule (quantity as related to a definite period of time) is expected to control the flow of materials so that each part of the national economy, War or civil, will be controlled in receiving a required MINIMUM based on actual need. The hope is that by controlling the minimum there will be a greater maximum for all sections of the economy, and that factories may operate on a steadier uninterrupted basis, and workers may have jobs without layoffs for lack of parts or materials.

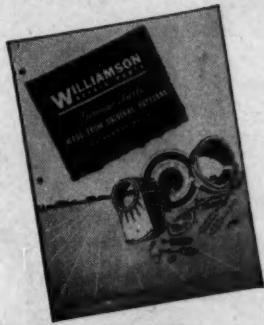
This idea of imposing a minimum, and of fitting quantity to time periods, is the core of the Plan. Eventually it is hoped it will fit not only materials and assemblies and products, but labor, power and transportation and all the many elements that enter into the complex economy. The Plan works in theory to make materials flow in such manner that the swiftest production unit of an assembly will never be far ahead of the slowest.

We know, as undoubtedly you know, that there will be nothing but stoves in cantonments and similar military plants now starting, or to be built. The only exception is in favor of hospitals. Metal, as a matter of fact, is eliminated from all comparable projects except in the most extreme need. Even in military jobs non-metallic materials have been indicated. Obviously this process of levelling, to bring all the economy on a relatively comparable footing, will do much to hearten all industry, and all people. It appears at this writing as if Eberstadt will do much in his terse and incisive way to take out of our War effort much of stuffed shirt pontification that has been so exasperating and discouraging.

## Quality Standards Intact Here

To our hundreds of customers and friends, we pledge that nothing will be shipped to you that is not up to our regular quality standards. Naturally, we are restricted in some materials, and will be until this war is won.

**NEW:**—Williamson now operates a 24-hour furnace parts repair service. Ask your jobber about this service, or get in touch with us direct.

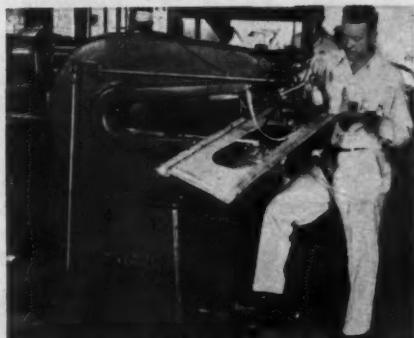


★  
**FREE!!**  
SEND FOR THIS  
WILLIAMSON  
REPAIR PARTS  
CATALOG TODAY

Address Dept. 2

THE **WILLIAMSON**  
HEATER COMPANY  
CINCINNATI, OHIO

## Libert Hi-Speed SHEAR



Photograph through the Courtesy of The United Airlines, Inc.

### ★ with SPECIAL AIRCRAFT HEAD! ★

Built to speed up  
Aircraft Sheet  
Metal production,  
this Shear handles  
formed or flat  
pieces, internal or  
external cuts, plain  
or irregular shapes  
— quickly and  
easily.

Accurately Operated by  
Unskilled Workers!

You reduce labor cost with a  
Libert! Unskilled workers become  
experienced operators quickly—  
easily follow scribed layouts to  
produce perfect work. Libert  
Foot Pedal Control frees both  
hands for faster, more accurate  
work.

Bulletins on request.

### ★ LIBERT MACHINE COMPANY ★

Green Bay, Wisconsin

Quality Shears Since 1915

## YOUR BLOWER REQUIREMENTS

available at

Schwitzer-Cummins Company

● BLOWERS FOR EVERY PURPOSE  
HY-DUTY Blowers, 9 1/4" to 25".  
Top and Bottom Horizontal, and Top  
and Bottom Vertical Discharge.  
Top and Bottom Motor Mounting.  
Dual Units also available.



● CENTER DISC WHEEL  
Double Inlet, Double Width.  
Reinforced Center Disc.  
Designed for Modern Air Conditioning and  
Heating Applications.  
Sizes, 4 1/2" to 50".



● SINGLE INLET WHEELS  
For Oil Burner, Stoker, and Air Conditioning  
Applications.  
Sizes, 4 1/2" to 50".  
Variety of Blade Lengths for each diameter.



● ENGINEERING DATA  
Write for Catalogues showing complete Performance Data.  
Experienced Engineering Department available to help solve your  
Air Handling Problems.

BLOWER DIVISION  
SCHWITZER-CUMMINS COMPANY  
1145 EAST 22ND STREET INDIANAPOLIS, U. S. A.



Vitroliner Chimneys offer you a dependable fool proof easily assembled Chimney. Fully insulated with Fyrex prefabricated asbestos, and constructed of acid resisting vitreous enamel coated iron pipe with bell and spigot joints.

Vitroliner produces twice the draft of masonry chimney and is ideal for any type of fuel, oil, gas, or coal.

Vitroliner is supported from the ceiling joists and can be completely installed in twenty minutes.

Thousands of Vitroliner Chimneys are being erected in Defense Houses at the present time.

Write for details to

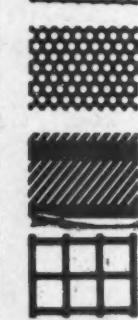
**CONDENSATION ENGINEERING CORP.**  
2515 Archer Avenue

Chicago, Illinois

## PERFORATED METALS ARE ESSENTIAL

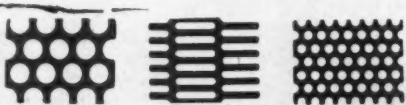


They are used in the processing of grain, food, chemicals, ore, coal, rubber, petroleum and many other products.



Our range of sizes is great and we aim to meet the most exacting demands.

Write us for information.



**The Harrington & King Co.**  
PERFORATING

5649 Fillmore St., Chicago, Ill. New York Office, 114 Liberty St.

## Neubecker— Blow Pipe Patterns

(Continued from page 66)

### Pattern for Tapered Main

The pattern for the tapered main is laid out by the radial line method, being careful to use *neutral* diameters in obtaining the radius for striking the pattern shape. If the flare of the tapered main joint is so slight so that the radius for striking the pattern would be too long and impracticable to use, then develop the pattern shape by triangulation for either welding or riveting as shown in a previous article published in AMERICAN ARTISAN, September, 1942 issue, Fig. 10 on page 56.

As previously mentioned, the opening cut in Fig. 16 was obtained by using the neutral diameter of the branch to intersect the outer surface or outside diameter of the main. This is more clearly indicated in the exaggerated diagram in Fig. 17 where a void is shown at *P-P* which must be filled, so as to have the opening flush with the inside diameter of the branch. This is accomplished by taking one half of the metal thickness and adding it to the pattern shape in Fig. 16 as

- ★
- 1. Cut Any Shape
- 2. Cut Any Size Sheet
- 3. Sizes from 18 Gauge to  $\frac{1}{2}$ "



Speed Up  
PRODUCTION!

Here's just the Shear that offers every feature you want. It does hundreds of odd shearing jobs better and faster—yet is an inexpensive hand operated tool. Send at once for Shear Bulletin. It gives all details of the Marshalltown line of sizes from 18 gauge to  $\frac{1}{2}$  inch capacity.

## MARSHALLTOWN THROATLESS SHEARS!

**MARSHALLTOWN MFG. COMPANY**  
920 Nevada Street, Marshalltown, Iowa

indicated by the dotted line on the inside of the opening.

The patterns for the fittings described in this article can also be used when double branches are required as shown in Diagram D on Plate No. 10. In using this type of fitting the branches should NOT be immediately opposite one another.

## Fake Furnace "Fixers"

(Continued from page 37)

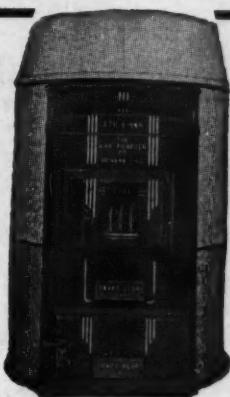
one notorious "fixer" applied to AMERICAN ARTISAN for camp inspector jobs because they couldn't "stomach" the job they were doing.

We believe this practice should be stopped. We believe government should be the one to stop it. We don't know where these "fixers" are getting all the furnaces they are selling. That should be looked into. With individual furnace dealers struggling to keep in business, and leaning over backwards to live up to rules and regulations, the fair thing for WPB to do is get on the job and do something.

If you are willing to sign your name to a complaint and if you know the addresses of owners who have been "fixed" send these in to your local WPB board or send them to us. If we all get together, maybe we can get some action.

## ATH-A-NOR

FURNACE  
REPAIR  
PARTS



COMBINE  
QUALITY  
EFFICIENCY



Ath-A-Nor Furnaces manufactured by the May-Fiebeger Company for the past 50 years have proved their ability as economical and efficient heating plants in thousands of homes throughout the country.

In these days of conservation, you should check all furnaces. Replace all parts that impair efficiency, and make certain that they operate perfectly. When ordering repair parts for Ath-A-Nor furnaces order them from May-Fiebeger. They will operate as efficiently as the original parts and assure longest wear. Remember . . . Ath-A-Nor Furnaces for the "MUST" replacements . . . and Ath-A-Nor Repair Parts for easiest installation and highest efficiency.

MANUFACTURERS OF QUALITY HEATING EQUIPMENT FOR OVER 50 YEARS

**MAY-FIEBEGER COMPANY**  
NEWARK  
OHIO

## GENERAL CONTROLS MANUAL RESET SWITCH TYPE THERMOPILOT

Provides Complete, Safe Control in Case of Pilot-Flame Failure for Domestic and Industrial Gas Applications



The A-100-5 Thermopilot operates on the proved thermocouple principle. The flame being applied to the thermocouple element maintains electrical contact when manually set, closing the circuit to the main gas valve. When the pilot gas flame fails, the Thermopilot opens the circuit, causing the gas valve to close. The A-100-5, being of the manual reset type must be manually reset after pilot flame is relighted or restored. When the button is pressed, armature and core are engaged and contacts will not be made until safe condition at pilot exists and release of button engages contacts. No adjustments need be made for installations; all parts are sealed. Contact ratings: 10 amps. at 115V.

Ask for Catalog No. 51



## GENERAL CONTROLS

801 ALLEN AVENUE • GLENDALE, CALIFORNIA  
Branch Offices: Boston • New York • Philadelphia  
Cleveland • Detroit • Chicago • Dallas • San Francisco

Today's War-Time  
Industrial Market  
is Your  
BEST BET NOW

-LET CLARAGE EQUIPMENT  
HELP SELL THE JOBS!

New war plants—and plants being converted—need heating, ventilating, exhaust and blow pipe installations. This high priority business can be your salvation. Specify Clarge Fans, Blowers, Unit Heaters—Nationally known and Nationally accepted, these highest quality air handling products help you land the jobs. Write for any information desired.



EXHAUST FANS



VENTILATING FANS

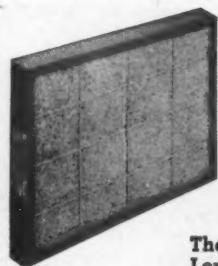


UNIT HEATERS

COMPLETE  
AIR CONDITIONING  
COOLING  
VENTILATION  
FACTORY HEATING  
MECHANICAL DRAFT  
FANS AND BLOWERS  
INDUSTRIAL NEEDS

CLARAGE FAN COMPANY—KALAMAZOO, MICH.  
SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES





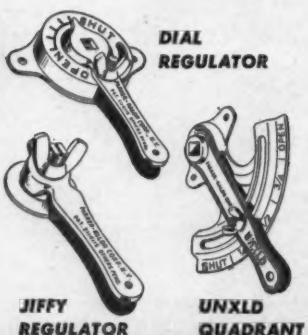
## AXIOM AIR FILTER

The result of fifteen years experience  
Lower in cost — Higher in quality  
Huge dust capacity—low resistance  
Prompt delivery assured  
Order now

BLOCKSMON & COMPANY, MICHIGAN CITY, INDIANA

### A Type And Size For Every Need

For efficiently controlling light and medium dampers in heating, ventilating and air conditioning systems, specify Parker-Kalon Damper Controls. The line includes all types and sizes, at a range of prices to fit the needs of any job. Parker-Kalon Corp., 190-192 Varick Street, New York.



PARKER-KALON damper controls

## CHICAGO STEEL BRAKE



BEST BY FORTY-TWO YEARS TEST

DREIS & KRUMP MFG. CO.  
7404 LOOMIS BLVD. CHICAGO

## Repair Parts

FOR ALL  
HEATING UNITS



A. G. BRAUER SUPPLY CO.  
Distributors of All Heating and  
Air Conditioning Equipment

2100 Washington Ave. St. Louis, Mo.

## SPOT WELD WITH AN ACME "Hot Spot" WELDER

Proven utility for over 26 years in  
thousands of sheet metal fabricating  
plants.

Write for Literature and Prices.

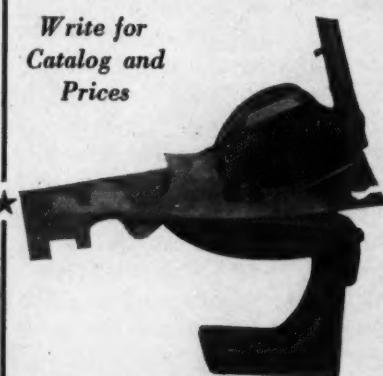
Complete Range of Sizes

Lifetime Guarantee!



ACME ELECTRIC WELDER CO.  
2618B Fruitland Road  
Los Angeles, Calif.

Write for  
Catalog and  
Prices



## SPEED UP ORDERS with a BEVERLY SHEAR

Throatless shears that  
cut any shape . . .  
straight, round or ir-  
regular. FASTER—no  
distortion! Precision—  
accuracy! Order No. 1  
for 14 gauge. No. 2  
for 10 gauge. No. 3  
for 3/16 inch mild  
steel and 10 gauge  
stainless.

BEVERLY SHEAR CO.  
3000 W. 110th PL, Dept. 1  
CHICAGO, ILL.

## THERMO-DRIP HUMIDIFIERS



They're heat controlled! That's your greatest assurance  
that the heat produced by your customers' furnaces will  
be properly tempered with moisture—and what a vast  
difference that will make in building goodwill and sales  
for you.

AUTOMATIC HUMIDIFIER CO.  
18th and Main Streets  
CEDAR FALLS, IOWA



# PAYNEHEAT

PAYNE FURNACE & SUPPLY CO., INC., BEVERLY HILLS, CALIFORNIA

## Assign Work to Idle Areas

**W**AR Man Power Commission recently named 97 manufacturing areas, where "much unemployment" exists and recommended that, whenever possible, war contracts be let in those areas.

Illinois areas which the report said have unemployed workers are Aurora, Bloomington, Danville, Galesburg, Peoria, and Quincy.

Chicago was listed among areas where labor shortages are expected, as were Springfield and Sterling, Ill. The Joliet and Rockford areas were said to already have labor shortages.

Among areas found to have labor surpluses were Kokomo and Lafayette, Ind.; La Crosse and Oshkosh, Wis.; Benton Harbor, St. Joseph, and Kalamazoo, Mich., and Cedar Rapids and Sioux City, Ia.

Areas where labor shortages are anticipated include Bloomington, Connersville, South Bend, and Terre Haute, Ind.; Adrian, Battle Creek, Grand Rapids, and Jackson, Mich.; Milwaukee and Racine, Wis., and Des Moines, Ia.

Areas with labor shortages included Evansville, Indianapolis, and Michigan City, Ind.; Detroit, Flint, Lansing, Muskegon, Pontiac, and Saginaw-Bay City, Mich., and Clintonville, Manitowoc, and Sturgeon Bay, Wis.

Subsequent to this report War Production Board Chairman Donald M. Nelson directed Government agencies which place war procurement contracts to

avoid, wherever possible, contracting for the production of war materials in areas where acute labor shortages are known to exist.

This policy was ordered in an amended Directive No. 2 which also explicitly authorizes and directs war procurement agencies to pay higher prices, if necessary to comply with procurement policies set out in the directive.

Those policies require that in negotiating war procurement contracts, the following considerations shall govern in the order listed:

1. Primary emphasis must be placed on obtaining delivery or performance when required by the war program.

2. Contracts should be placed with concerns requiring the least new machinery equipment or facilities to fill the contracts.

3. Communities or areas where acute labor shortages exist shall be avoided.

4. In general, contracts involving the more difficult war production problems should be placed with concerns best able, by reason of emergency, managerial and physical resource, to handle them. Contracts for items involving relatively simple production problems should be placed with concerns, normally the smaller ones, less able to handle the more difficult production problems.

5. All other things being equal, contracts should be placed so as to spread production among as many firms as is feasible.

## POWERFUL SUCTION — MOTORLESS!



Serve the cause of Victory by conserving motors and motor power! Serve the cause of economy as well! ALLEN CONI-VANE TURBINE VENTILATORS do both.

With the trend in ventilation being away from motor power, Allen's famous Coni-Vane Turbine is the choice of all high-type installations. "Fresh Air is Free" with the Coni-Vane, for it uses no electrical current, yet supplies powerful suction.

Send for literature on all Allen self-operating ventilation equipment.

**The ALLEN Corporation**  
9752 ERWIN AVE. DETROIT, MICHIGAN



### DENSEWOOD Mallets . . .

... Are SO STRONG—that you can flatten a  $\frac{1}{4}$ " pipe until it breaks at the edges—but the force can't split the DENSEWOOD Head! Patented wood-shrinking process makes this possible.

That's why one DENSEWOOD MALLET outwears several ordinary mallets—does better work at less cost. Takes wrinkles out of heavy sheet metal without scratching polished surfaces or stretching metal. Non-static. Made in all sizes and types—with lock-wedge handles that never loosen.

**DENSEWOOD CORPORATION**  
Elkhorn, Wisconsin

## KEEP 'EM REPAIRED!

**V**ERNOIS FURNACES, made of Vernalloy, the toughest cast iron, have exceptional lasting qualities . . . but occasional repairs keep them at peak efficiency. When you repair Vernois Furnaces order your parts direct from Mt. Vernon to assure perfect fit and greatest efficiency.

**Vernois**

**MT. VERNON  
FURNACE  
& MFG. CO.**

- MT. VERNON
- ILLINOIS

**TRY US FOR QUICK DELIVERY**  
 Sheet Metal Fabricating  
**MACHINES & TOOLS**

*Write for Catalog and New Bulletin No. 53*

**WARD MACHINERY CO.**  
 564 W. Washington Boulevard  
 Chicago, Illinois

**REPAIR PARTS FOR ALL  
 MAKES STILL AVAILABLE**



With priorities restricting sales of new equipment, repair business is more essential than ever. PEERLESS dealers can still depend upon prompt deliveries of repair parts for ALL MAKES AND AGES of furnaces. Get the repair business now and you'll be all set to get the new jobs after the war. PEERLESS builds warm air heating equipment in all sizes, including heavy duty units for the largest buildings. Write for dealer proposition and repair parts catalog.

PEERLESS FOUNDRY CO., 1853 Ludlow Ave., INDIANAPOLIS

**NEW LECTRO-SHEARS**

*Cut Metal, Faster, Easier*



Leading Distributors Everywhere Sell

**Black & Decker**  
 Portable Electric TOOLS

**HIGH EFFICIENCY...**

**LOW POWER COSTS**

LARGE, STREAMLINED INLET MEANS MINIMUM  
 LOSSES DUE TO ENTRANCE FRICTION OR EDDIES

WITH THIS

**Sturtevant**  
 MILL EXHAUSTER

"Designed and Built by the Pioneer"

B. F. STURTEVANT COMPANY  
 Hyde Park, Boston, Mass.  
 Branches in Principal Cities

**B B**  
**HOOKS & HANGERS**



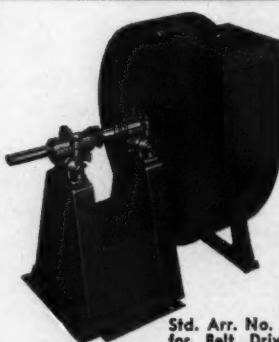
THRU  
 LEADING  
 JOBBERS  
 EVERYWHERE

No. 9



**BERGER BROTHERS CO.**

Main Office & Factory  
 229-237 Arch St., Philadelphia, Pa.



Std. Arr. No. 1  
 for Belt Drive

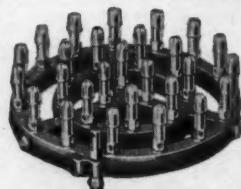
New and improved "EX" Fans are now available in standard sizes from No. 15 to No. 80 and from 200 to 30,000 CPM Capacity with pressures up to 15" W.G. These fans are commonly used for exhaust problems to handle dust, fumes, shavings, etc., but can be adapted for forced draft service.

"EX" Fans are furnished in all standard arrangements of the N.A.F.M. The design is such that it can be easily modified to suit special assemblies, thus "EX" Fans are ideal for resale purposes, as part of factory assembled units.

*Write us about your problems. Send for Bulletin No. EX-41*  
**BAYLEY BLOWER COMPANY**  
 1817 South 66th Street Milwaukee, Wis.

**BARBER BURNERS**

*For All Gas Appliances*



We supply Burner Units to hundreds of leading gas appliance manufacturers. We will design and furnish the proper size burner, with the proper jets, for YOUR appliance. BARBER Burners give complete combustion on natural, manufactured, bottled or Butane-Propane Gas.

*Latest Catalog on request.*

**THE BARBER GAS BURNER CO.**  
 3704 Superior Ave., Cleveland, Ohio

**BEND-EZY**

**REGISTERS**

**LOW COST**

**EFFICIENT**

**DURABLE**

**PERFECT FOR DEFENSE PROJECTS**



**AIR CONTROL GRILLES**

WRITE FOR CATALOG! Comphila  
 information on BEND-EZY Registers,  
 STANDFORATED Grilles, Industrial,  
 Ornamental Perforations, Stampings.

**STANDARD**

3137 W. 49th PLACE

STAMPING &  
 PERFORATING CO.  
 CHICAGO, ILLINOIS

## Interpretations, Amendments

(Continued from page 29)

(i) Whose total inventory at cost, including consigned stocks, of all supplies is less than \$20,000.00 and;

(ii) Whose total inventory at cost of each type of supplies as set forth in paragraph (a) (1) of this order, is less than \$10,000.00.

(c) *Provisions of other orders.* No provision of this order shall be construed to permit the accumulation of inventories of any item of material in contravention of the provisions of any other applicable order or orders issued by the War Production Board or heretofore issued by the Office of Production Management.

(d) *Appeals.* Any person affected by this order who considers that compliance therewith would work an exceptional and unreasonable hardship upon him, may apply for relief to the War Production Board by telegram or letter setting forth the pertinent facts and the reason such person considers that he is entitled to relief.

(e) *Records and Reports.* (1) Each supplier (other than those suppliers who are exempt from the provisions of this order pursuant to paragraph (b) (6) or (7) shall, on or before the twentieth day of each month make proper entry of inventory (book or physical at cost), sales of direct shipments, sales from stock, and total sales of each type of supplies as set forth in paragraph (a) (1) of this order, during the previous calendar month on Form PD-336. This form must be retained for a period of at least two years for inspection by representatives of the War Production Board.

(2) The Director General for Operations may at any time call for these reports to be submitted to the War Production Board.

(f) *Applicability of Priorities Regulations.* This order and all transactions affected thereby are subject to all applicable provisions of the Priorities Regulations of the War Production Board, as amended from time to time.

(g) *Communications.* All communications concerning this order shall be addressed to "War Production Board, Distributors' Branch, Washington, D. C., Ref: L-63. (P.D. Reg. 1, as amended, 6 F.R. 6680; W.P.B. Reg. 1, 7 F.R. 561; E.O. 9024, 7 F.R. 329; E.O. 9040, 7 F.R. 527; E.O. 9125, 7 F.R. 2719; sec. 2(a), Pub. Law 671, 76th Cong., as amended by Pub. Laws 89 and 507, 77th Cong.)

Issued this 13th day of August 1942.

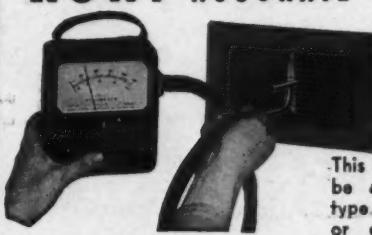
AMORY HOUGHTON,  
Director General for Operations.

### List A

The types of material set forth below are not deemed to be supplies within the meaning of paragraph (a) (1). Accordingly, these materials may be excluded from the monthly report required by paragraph (e), and are not subject to the inventory restrictions required by paragraph (b), provided that sales of such

(Continued on page 100)

## NOW! ACCURATE AIR VELOCITY MEASUREMENTS at INTAKE GRILLES!



This new jet attachment can be added to existing Tube-type Velometers now in use, or can be purchased with other standard jets and new Velometers. The new intake grille jet is offered only in the spot type since the center reading only has proven to be sufficiently accurate for all commercial purposes. Write for information.

 Illinois Testing Laboratories Inc.  
412 N. La Salle St., Chicago, Ill.

## Bremil PORTABLE SHEARS



Your work will proceed faster and neater when you use Bremil Portable Shears on the job or in the shop. Write today for literature showing complete line.

ALL-ALLOY No. 2 cuts up to  $\frac{1}{4}$ " steel plate.

ALL-ALLOY No. 1 cuts up to No. 11 gauge strip or sheet. Special blades may be obtained for shearing stainless steel.

BREMIL MFG. CO., ERIE, PA.

## Tappico FILTERS

CHICAGO FILTER CO.  
JOLIET, ILL.

## Swartwout Airjector



gives you power roof ventilation at its best. You can recommend it as a highly efficient ventilator for use where forced air movement is required or where the load varies. Large range of sizes, capacities.

THE SWARTWOUT CO. 18511 Euclid Ave. Cleveland, Ohio

# ★ War Time Trade News ★

ACCURATE

DEPENDABLE



## MASTER HEAT REGULATOR

TYPE A-23 positive snap action regulator operates on a differential of only  $\frac{1}{2}$  degree.

WHITE MFG. CO., 2368 University Ave., St. Paul, Minn.

*Syncromatic*  
T. M. REG.

COAL                    OIL  
AND  
GRAVITY            FORCED AIR  
STEEL FURNACES

3373 No. HOLTON ST., MILWAUKEE, WIS.

**GILCO**  
Automatic

FURNACES and WATER HEATERS



J. L. GILLEN CO.  
DOWAGIAC . . . MICH.

## WORTH REMEMBERING

Speaking of controls—any basic advantage assuring a larger measure of dependable performance and longer control life is worth remembering.

The mercury switch is definitely the most desirable means of making and breaking an electrical circuit. This is corroborated by experience.

The reason is obvious. The contacting surfaces are hermetically sealed, in other words, they are shielded from dust, dirt moisture or corrosion—all common sources of contact trouble.

Merco Controls are 100% mercury switch equipped. You get this added value at no additional cost.

The Merco Corporation, 4209 Belmont Ave., Chicago.

International Nickel Company's plant at Huntington, West Virginia, has received the third war production award, according to Robert C. Stanley, President. The latest honor gives the plant the right to fly the Army-Navy "E" with two stars. Each star represents the renewal of production honors for a six months' period. The original award was for a twelve-month period.

Glendon H. Roberts, President, Detroit Stamping Company, Detroit, advises that his company is engaged now entirely on production of stampings, dies, clamping fixture tools, special washers and shims for aircraft bomber engines, instruments, planes, tanks, guns, ships, half track trucks, marine engines, machine tools and ammunition. All and total is fifty per cent greater than peacetime record volume.

Charles R. Hook, President of The American Rolling Mill Company, accepted the joint Army-Navy "E" award for excellence in production at Armco's Middletown and Hamilton, Ohio, Divisions on October 5. Token pins for Armco employees were also presented at the ceremony.

Similar ceremonies were held on succeeding days at Armco's Butler, Pa.; Ashland, Ky.; and Zanesville, Ohio, plants—marking the first time that the coveted Army-Navy "E" production award has been won by all divisions of a steel company.

Master Sergeant Robert B. Fischer, Jr., formerly in the sales and advertising department of The Quincy Stove Manufacturing Company, Quincy, Illinois, is stationed at Camp Wolters, Texas, while his brother Jack Fischer is in the Air Corps, stationed in Alaska.

Two combustion engineers are doing duty in essential war industries. F. G. Suchland has taken a job with the shipyards at Oakland, California, and John Pieper has accepted a job with the Quincy Barge Builders.

Independent Pneumatic Tool Company, Aurora, Illinois, was awarded the Army and Navy E on October 8. Presentation was made by Captain Robert Henderson of the Office of the Secretary of the Navy. Presentation of Production Workers' emblems of Excellence was made by Major General Samuel T. Lawton of Central Defense Command.

The announcement explains the significance of the Army-Navy production award and the Production Workers' Emblem of excellence. There is a letter to Thor men and women by Neil C. Hurley, President, and a list of 91 former employees now with the colors.

Merco Corporation, 4201 Belmont Avenue, Chicago, has twenty-four boys in the service as of September, this year, and is publishing "Merco News" for the boys who are in the service of the United States. Number 1, dated September, carries a letter from President Hugh Courteol telling the purpose of the "News" and inviting those already in the service to send letters as often as convenient. Page 2 carried "Tidbits about Our Boys" by Joe Massarelli, president of the Merco Welfare Club. Page 3 contains excerpts from letters from here, there and everywhere. Page 4 carried a picture of the Merco Honor Roll and the latest whereabouts of men in service.

E. K. Campbell of E. K. Campbell Heating Company, Kansas City, Missouri, reports three of their employees now in the service.

About 90 per cent of their present business consists of war orders. Complete fan systems installed or delivered to install in eight 1038-S theatres and a considerable number of other buildings of large character such as hangars, processing buildings, tank repair shops, etc.

Roger P. Campbell became manager of the Nashville office, replacing A. Q. Campbell, Jr., now a captain of field artillery.

Minnesota Mining & Manufacturing Company, Saint Paul, Minnesota, reports that 805 employees are now in the Army, Navy, Marine or Government service.

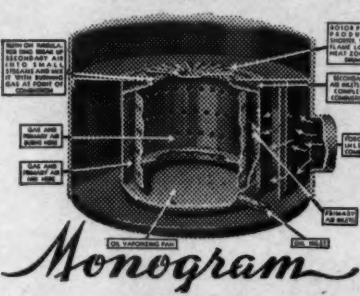
Auto-Heat Corporation, New York City, reports four of their employees in the service, as follows:

Edward Weik, mechanic—Tank Corps  
Alfred Johnson, mechanic—Army Flyer  
Howard Hunter, mechanic—Signal Corps  
R. H. Loughlin, salesman—Navy

Famous Patented **MONOGRAM** Vaporizing Burner Provides Highest Known Operating Efficiency with Oil

Full Forced  
Winter Air  
Conditioners

Booster  
Gravity  
Units



Utility  
Room  
Units

Automatic  
Water  
Heaters

The QUINCY STOVE MFG. COMPANY, Quincy, Illinois

# ★ War Time Trade News ★

Register & Grille Mfg. Co., Incorporated, Brooklyn, N. Y., reports practically all orders are for Government buildings. The company has lost some factory men to the Marines and the Navy. Two in the office are expecting Army calls.

Every man and woman in the organization is now buying bonds through the payment plan.

The Hays Corporation, Michigan City, Indiana, is engaged 100 per cent in the production of war work. Most of this consists of the manufacture of draft gages and combustion test sets for the U. S. Navy and the Maritime Commission. They are supplying complete combustion control systems, furnace draft regulators, and combustion meters for army camps, air fields and defense plants generally.

The Hays Corporation plant personnel entered enthusiastically into the war bond drive and on September 16th were awarded the Treasury Department Minute-Man Flag for 100 per cent participation in the drive. The flag was presented by the local Treasury Representative, W. K. Smith, with appropriate ceremony.

Five Divisions of Westinghouse Electric Manufacturing Company, have received production pennants. The company is now producing war equipment at the rate of \$500,000,000 a year. Rear Admiral William Carleton Watts of the United States Navy presented the Army-Navy Award pennants for high achievement in the production of war equipment.

A publication "Quicker for Victory" is issued every two weeks, containing pictures of employees who have been given special awards, news on the progress of the activity, standings of various departments, and special communiques for management and employee representatives.

One hundred fifty women secretaries at the executive offices have launched a campaign to eliminate such time and paper consumers as reports no longer needed by the boss—to save time, printing and mailing expense, and filing space.

Westinghouse employees are buying war bonds at the rate of \$6,000,000 a year. 97 per cent of the East Pittsburgh division's employees are buying war bonds.

The Army-Navy "E" flag for excellence flies over the plant of American Machine and Metals, Inc., East Moline, Illinois, in recognition of "jobs well done."

Brigadier-General Robert L. Denig of the U. S. Marine Corps and Commander F. F. Foster of the Bureau of Ordnance of the Navy, Washington, and Lieutenant Colonel A. K. Stiles of the Rock Island Arsenal commended the employees and management for doubling their original production quota of 20-mm anti-aircraft gun mounts and for exceeding or meeting their quotas on other war items. Commander Foster described naval actions in which anti-aircraft guns on mounts shipped from the American Machine and Metals plant in March of this year had shot down Japanese planes in the Solomon Islands fighting.

Philip G. Mumford, chairman of the board and president of the company, in accepting the "E" pennant asserted that the company and its workers were now dedicated to the single purpose of producing war goods in steadily increasing volume.

Besides gun mounts, the company is also producing mobile field laundry units for the Army to serve with troops on campaign. Each unit consists of a large trailer-truck in which is mounted a laundry of size sufficient to cleanse the clothing of 3,000 men per week, designed to move with troops at speeds as high as fifty miles an hour over rough terrain.

Oscar P. Cleaver, for 12 years a lighting engineer with the Lamp Division of the Westinghouse Electric and Manufacturing Company, has been commissioned a captain in the U. S. Army Engineers Corps and has reported to the Engineer Board at Fort Belvoir, Va.

L. R. Benson, President, Alex R. Benson Co., Inc., Hudson, N. Y., has two sons in the Pacific. One is a lieutenant on a destroyer and one a captain in the Marines.

About 100 per cent of their present business consists of war orders.

Lawrence E. Skelly, connected with Young Radiator Company, Racine, Wisconsin, in an engineering and sales capacity for the past several years has been commissioned a Lieutenant (J. G.) in the U. S. Navy Reserve and ordered to active duty.



**KOOLSTACK FURNACES FOR STOKERS**  
OIL or HANDFIRED  
50,000 to 200,000 BTU's  
Patented Dampener Uses All the Heat in the Added Heating Surface  
THAT IS SOMETHING TO SELL  
**LEADER IRON WORKS, Inc.**  
Decatur, Illinois

## ROCK ISLAND REGISTERS and INTAKES

Two trade marks to remember when you want the height of efficiency, beauty and low cost combined in registers and intakes.

**AIR-VANE**



Dealers Net Estimating book, a time and money saver, sent free upon request.

★ **ROCK ISLAND REGISTER CO.**  
ROCK ISLAND ILLINOIS ★

## NIAGARA FURNACES

★ AND ★  
★ **FORCED WARM AIR HEATING EQUIPMENT** ★  
★ **for REPLACEMENT . . . for DEFENSE HOUSING** ★  
★ A dependable line of Gravity and Forced ★  
★ Warm Air Furnaces to carry you through the ★  
duration. ★

★ **THE FOREST CITY FOUNDRIES COMPANY**  
2500 W. 27th Street Cleveland, Ohio

**CHOOSE:**  
**BONDS or BONDAGE**

Buy U. S. War Bonds

With manufacturing facilities converted 100% to War Production, our research department is devoted to designing improved units to be added after V day to the complete CONCO line.

**CONCO**

CORPORATION  
Div. of H. D. Conkey & Co.  
MENDOTA, ILLINOIS

**ECON-O-COL**  
the "Stronghearted"  
**STOKER**

ECON-O-COL AUTOMATIC COAL BURNER  
ECON-O-COL STOKER DIVISION  
COTTA TRANSMISSION CORP.  
ROCKFORD, ILLINOIS

THE ENERGY OF STEEL

# CHENEY Protected METAL

in hand brake, locked, malleted, riveted and worked with regular shop tools.

Forms easily into warm air heating or ventilating ducts, counter flashings, valleys, metal roofs, downspouts. Adaptable to all general sheet metal work.

Available for immediate shipment from stock in 26 gauge 36" by 90" sheets. Send for Application Folder.

CHENEY METAL PRODUCTS CO., 33 Oxford St., TRENTON, N. J.

A PROTECTED STEEL SHEET. Special slate-pitch coating makes it moisture-proof, weather-proof and will resist heat up to 230° F. Will not crack or peel. Meets gov't. specifications.

CHENEY "Protected" METAL is tough. It can be sheared, bent

## Elgo Ventilating Specialties

### Adjustable Automatic Shutter

Here's a shutter that not only opens and closes automatically, but also can be adjusted for different air velocities, according to the requirements of any particular installation. Adaptable to a wide range of uses.

Write for circular and prices!



"ELGO" TYPE  
AUTOMATIC SHUTTER  
Rear View (Closed)

ELGO SHUTTER & MANUFACTURING CO.  
6966 W. Jefferson  
Detroit, Mich.

Free  
CATALOG

## WISS "METAL-MASTER" SNIPS (Compound Action)



"TWICE  
THE WORK  
WITH HALF  
THE  
EFFORT"

TWO MATCHED PATTERNS M1 (Cuts Left) M2 (Cuts Right) Cut circles, squares and any irregular patterns on Stainless, Dural and Monel Metals with the greatest of ease. Jaws of wear-resisting Manganese Molybdenum Steel. Handles hot-pressed from tough Chrome Vanadium Steel. Nickel steel bolts and nuts to Government specifications. All parts interchangeable. Detachable rubber handle grips at slight extra cost.

J. WISS & SONS CO.  
ESTABLISHED 1848  
NEWARK, N. J.

materials are not included in computing maximum permissible inventory as defined in paragraph (a) (6).

(1) All materials referred to in schedules A and B of 962.3 (General Preference Order M-21-b, as amended from time to time):

(2) Materials made of aluminum, provided such materials were acquired by the supplier pursuant to allocation or other specific authorization of the Director of Industry Operations or the Director General for Operations of the War Production Board;

(3) Automobile and truck replacement parts as defined in:

(i) Section 1297.1(c) (8), Limitation Order No. L-158, issued July 4, 1942; and

(ii) Section 983.4 (b) (4), Supplementary Limitation Order L-4-B, issued April 25, 1942;

(4) Functional replacement parts for machinery and equipment: Provided, that in no event shall the supplier accept delivery of any such parts where his inventory thereof is, or will by virtue of such delivery become in excess of six times his sales of such parts during the second preceding calendar month;

(5) Machinery or equipment which is purchased by the Supplier at a cost per unit in excess of \$500;

(6) Any material which is subject to rationing by the Office of Price Administration;

(7) The following building materials; Portland and natural cement, lime, gypsum and gypsum products, bituminous roofing materials, concrete pipe, cut stone, sand and gravel, crushed stone, clay products, insulation board, acoustical materials, mineral wool, paving materials, concrete products, glass, lumber, wooden mill work.

## Insulation Exempt from L-41's \$200

THE national fuel conservation program has been facilitated by recent governmental actions designed to encourage fuel-saving measures, wherein wartime restrictions have been lifted, use of the necessary materials has been permitted, and favorable financing terms made available so that properties now heated by scarce fuels may be converted to coal-burning equipment, and excessive fuel consumption reduced by use of proper insulation.

By a recent order, installation of insulation materials, air cell pipe covering, weather-stripping, and storm windows and doors in order to conserve fuel has been exempted from the War Production Board's Conservation Order L-41. Previously, insulation projects costing more than \$200 in the case of one-to-five family houses or more than \$1,000 in the case of larger residential structures required specific WPB authorization.

The exemption applies to insulation projects started before January 1, 1943 and prohibits the use of rubber, cork, or metal other than for fastenings.

The order also exempted from L-41 all construction started prior to January 1 which is necessary for the conversion or substitution of heating equipment to permit use of fuel other than oil, electricity or gas. Previously, this exemption had applied only to the Eastern States and to Oregon and Washington.

Under WPB regulations, the sale or delivery of equipment to be used for converting equipment burning oil or gas to coal-burning equipment is exempt from the restrictions of Plumbing and Heating Order L-79.

**Waterloo**

REGISTERS • GRILLES  
AIR CONTROL DEVICES  
LOUVRES • VANES • SHUTTERS  
DIFFUSERS • DAMPERS  
DOOR VENTILATORS

WATERLOO REGISTER COMPANY  
WATERLOO, IOWA • SEATTLE, WASH.  
Recommendations in principal cities

**SERVICE SECTION:** Rates—\$5.00 per inch per insertion. One inch minimum. **CLASSIFIED SECTION:** 5 cents for each word including heading and address. Count seven words for keyed address. \$1.00 minimum. Cash must accompany order.

Better for Every Spraying Purpose

## MARLEY SPRAY NOZZLES



"Tops" for Air Washing, Humidifying, Brine Spray Lofts, etc. Marley nozzles lead all in sales and in profits to you.

\*Finer, more uniform spray. \*Effective operation at Low Pressures. \*No internal parts to clog or wear.

MARLEY CO., INC. Write for Literature Now! Kansas City, Kansas

## WELDING HEADQUARTERS



Electric welding equipment of every description to weld from a watch case to a door. Special or standard SPOT WELDERS from  $\frac{1}{4}$  to 500 K.V.A. A.C. Arc Welders from 100 to 400 Amps. We invite contract Spot Welding in large or small quantities.

EISLER ENGINEERING CO.  
CHAS. EISLER  
781 S. 13th St. (Near Aven Ave.) Newark, N. J.



Save Money, Time and Muscle  
Drill Concrete with the "Do-All" Combination Electric Hammer and Drill. Set expansion bolts 10 to 20 times faster than with hand tools. Drills concrete, brick, stone, metal, wood. Easy to maintain. Weighs 15 lbs. Drills to  $1\frac{1}{2}$ " in concrete. 2400 blows per min. Bulletin 400. Phone Austin 9880.  
WODACK ELECTRIC TOOL CORPORATION  
4844 W. Huron St., Chicago, Ill.

## Classified

### FOR SALE

FOR SALE: Two practically new unit heaters in perfect condition. Have been in storage more than a year. One is a Bryant Twin Unit Heater No. 3A-82 with a Minneapolis-Honeywell Thermostat. The other is a Bryant Single Unit with a T-21 Minneapolis-Honeywell Thermostat. All other controls included. Priced exceptionally low for quick sale. A rare bargain for anyone in natural gas communities. Write Key 558, American Artisan, 6 N. Michigan Ave., Chicago, Ill.

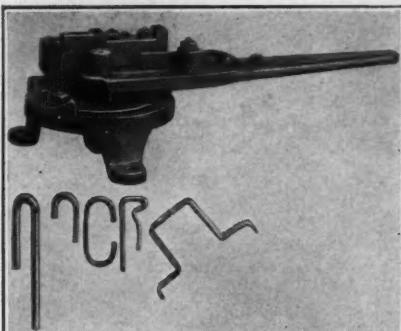
### MISCELLANEOUS

## Buy War Bonds



# AMERICAN ARTISAN

# Service Section



## THE HINMAN BENDERS

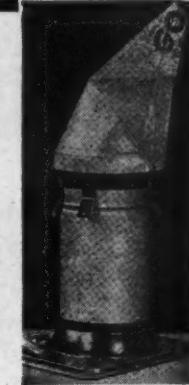
Angle & U, Eye and Pipe

Write for catalog.

manufactured by

L. R. EVANS MACHINE COMPANY  
SANDWICH, ILLINOIS

## ACCURATE REVOLVING VENTILATORS



Due to the critical metal situation the popular line of Accurate Revolving Ventilators and Sheet Metal Bases will come through for the duration in black iron and be coated with a heavy covering of asphaltum paint for protection against weather, so you can readily get them without restriction.

Accurate Revolving Ventilators have been often approved by both the Army and Navy Officers, so do not hesitate to use this efficient ventilator on these jobs.

ACCURATE MFG. WORKS  
2336-38 Milwaukee Ave., Chicago, Ill.

Trademark  
**YAGER'S** Soldering Salts—Paste  
Reg.

Two standard fluxes for all soft soldering. Safe, quick, certain. Buy them at your jobbers or write us if we cannot supply you.

½ lb., 1 lb., 5 lbs. cans; 2 oz., 6 oz., 12 oz.

ALEX. R. BENSON CO., INC., HUDSON, N. Y.

**QUICK DELIVERY!**

**BRAKES—HAND & POWER**  
HAND: 4'16, 6'18, 6'16, 6'14, 8'16, 8'14, 10'16;  
BOX AND PAN: 3'14, 4'14, 5'14, 7'14;  
POWER: 3'8/16, 4'4", 6'12, 8'10, 10'10;  
OHL: 60" 14 ga., 11 ga., 5' 14 ga., 4' 16 ga.  
Nos. 255 & 335 D&K; 4" 16" Thermostatic;  
**PRESSES—DEEP THROAT**  
No. 20 Excelsior; No. 125-A Niagara;  
No. 15 Toledo; No. 20 Consolidated;  
**PRESSES OBI**  
Nos. 1, 2, 3, 4, 5, Bliss, Walsh, Consolidated,  
Toledo, Rockford, Niagara;  
**SHEARS**  
ANGLE: 6x6" 14 ga.; 10' 18 ga.; 10' 14 ga.; 8' 18 ga.; 6' 18 ga.;  
ROTARY: Quickwork 3/16" capacity, 60" Thr. 14  
ga.;  $\frac{1}{2}$ " Marshalltown Bevel Shear.

SEND FOR OUR CATALOG 404

**INTERSTATE MACHINERY CO., INC. — YARDS 5806**  
1433 W. PERSHING RD., CHICAGO, ILL.

...Needs No PRIORITY!

## ALLEN "SILOY" SODER

End your Soder worries now with SILOY, the new low tin content wonder soder. Works like magic with most common metals. In some cases even better than high tin-content soders.

### SEND FOR SAMPLES

Send us detail of your soldering problems—ALLEN SILOY can help you solve them.

**L. B. ALLEN CO., Inc.**  
6702 Bryn Mawr Avenue, Chicago

## CRACK DOWN ON Spatter COSTS

### USE SPATTER-NOX

Reduces weld spatter 50-75%; cuts cleaning time 50%; increases welding speed 30-50%. Inhibits rust and is a good foundation for paint. Simply brush or spray on. Covers 650-700 square feet per gallon.

### AND SPATTER-OFF

A companion water-soluble product. Used where welds are to be pickled for galvanizing, sherardizing or plating. Spatter-Off is non-fuming. Covers 500 square feet per gallon.

Write for Latest Descriptive Bulletin  
**UNIVERSAL POWER CORPORATION**  
4298 Euclid Avenue  
Cleveland, Ohio

## WANTED

USED 10' power squaring shear, capacity 3/16" or 10 gauge. Address Diamond Roofing and Metal Works, 336-338 Maple Street, Perth Amboy, New Jersey.

### BLOWERS — FANS — EXHAUSTERS

THOROUGHLY REBUILT, for perfect performance. All types; all standard makes. All sizes including the big ones. Hundreds in stock, meeting all requirements. Attractive prices. Fully guaranteed. Expert engineering counsel GENERAL BLOWER CO., Engineers, 403 North Peoria Street, Chicago, Illinois.

## Buy War Bonds



# Index to ADVERTISERS

Accurate Mfg. Works.....	101	Gehl Bros. Mfg. Co.....	*	Pacific Airmax Corp.....	*
Acme Electric Welder Co.....	94	General Blower Co.....	101	Parker-Kalon Corp.....	94
Adams Co., The.....	76	General Controls.....	93	Patten Co., J. V.....	*
Aerofin Corp.....	*	General Electric Co.....	6	Payne Furnace & Supply Co.....	94
Air Control Products, Inc.....	10	Gerett Corp., M. A.....	*	Peerless Electric Co., The.....	*
Air-Maze Corp.....	81	Gillen Co., J. L.....	98	Peerless Foundry Co.....	96
Airtemp Division, Chrysler Corp.....	*	Grant Wilson, Inc.....	13	Penn Electric Switch Co.....	18
Airtherm Mfg. Co.....	75			Perfex Corp.....	*
Allen Co., Inc., L. B.....	101	Harrington & King Perforating Co.....	92	Premier Furnace Co.....	*
Allen Corp.....	95	Hart & Cooley Mfg. Co.....	89	Quincy Stove Mfg. Co.....	98
American Air Filter Co., Inc.....	36	Hart & Grouse Corp.....	*	Randall Graphite Products Corp.....	7
American Blower Corp.....	*	Henry Furnace & Foundry Co., The.....	*	Register & Grille Mfg. Co.....	*
American Brass Co.....	19	Herco Oil Burner Corp.....	*	Republic Steel Corp.....	14 and 15
American Coolair Corp.....	*	Heremetal Co., The.....	*	Research Products Corp.....	82
American Hotel Association.....	*	Hess Warming & Ventilating Co.....	*	Rock Island Register Co.....	99
American Radiator & Standard Sanitary Corp.....	*	Hussey & Co., C. G.....	77	Round Oak Co.....	*
American Rolling Mill Co., The.....	8			Rybolt Heater Co.....	16
Armstrong Company, The.....	81	Hlg Electric Ventilating Co.....	79	Ryerson & Son, Inc., Joseph T.....	3
Auer Register Co.....	86	Illinois Testing Laboratories, Inc.....	97	Sall Mountain Co.....	5
Automatic Humidifier Co.....	94	Independent Register Co., The.....	83	Schwitzer-Cummins Co.....	91
Automatic Products Co.....	87	International Heater Co.....	*	Scovill Mfg. Co.....	*
Barber Gas Burner Co., The.....	96	International Nickel Co., Inc.....	*	Scully Steel Products Co.....	21
Bard Mfg. Co.....	*	Interstate Machinery Co.....	101	Skilsaw, Inc.....	83
Bayley Blower Co.....	96			Southwest Hotels.....	*
Benson Co., Inc., Alex R.....	101	Johnson Co., S. T.....	*	Standard Stamping & Perforating Co.....	96
Berger Bros. Co.....	96	Lafayette Hotel.....	*	Stanley Electric Tool Div., The Stanley Works.....	*
Bethlehem Steel Co.....	68	Lamneck Products, Inc.....	*	Sturtevant Co., B. F.....	96
Beverly Shear Co.....	94	Lau Blower Co.....	*	Superior Sheet Steel Co.....	54
Black & Decker Mfg. Co.....	96	Leader Iron Works, Inc.....	99	Swarthwout Co.....	97
Blocksom & Co.....	94	Libert Machine Co.....	91	Synchronatic Air Conditioning Corp.....	98
Brauer Supply Co., A. G.....	94	Lincoln Electric Co.....	87		
Bremil Mfg. Co.....	97	Little Burner Co., Inc., H. C.....	*		
Burt Mfg. Co.....	*	Lockformer Co.....	85		
Carnegie-Illinois Steel Corp.....	21			Torrington Mfg. Co.....	*
Century Electric Co.....	17	Maple City Stamping Co.....	*	Tuttle & Bailey, Inc.....	*
Cheney Metal Products Co.....	100	Marley Co., The.....	101	U. S. Air Conditioning Corp.....	*
Chicago Filter Co.....	97	Marshalltown Mfg. Co.....	92	United States Gypsum Co.....	*
Clarage Fan Co.....	93	May-Fiebeger Co.....	93	U. S. Register Co.....	*
Cole Hot Blast Co.....	*	May Oil Burner Co.....	*	U. S. Steel Corp.....	21
Coneo Corp.....	99	McDonnel & Miller.....	*	Universal Power Corp.....	101
Condensation Engineering Corp.....	92	Mercoid Corp., The.....	98	Utility Fan Corp.....	*
Cotta Transmission Corp.....	99	Meyer & Bro. Co., F.....	*		
Crescent Tool Co.....	67	Meyer Furnace Co.....	*	Victor Electric Products, Inc.....	*
Dewitt Hotels.....	*	Milcor Steel Co.... Outside Back Cover		Wagner Electric Corp.....	*
Densewood Corporation.....	95	Minneapolis-Honeywell Regulator Co.....		Ward Machinery Co.....	96
Diamond Mfg. Co.....	*	Monmouth Products Co.... Inside Back Cover		Waterloo Register Co.....	100
Diamond Roofing and Metal Works.....	101	Morency-Van Buren Div., Scovill Mfg. Co.....	*	Waterman-Waterbury Co., The.....	*
Dreis & Krump Mfg. Co.....	94	Morrison Steel Products, Inc.....	*	Weirton Steel Co.....	*
Eisler Engineering Co.....	101	Morrison Products, Inc.....	*	Westinghouse Electric & Mfg. Co.....	*
Elgo Shutter & Mfg. Co.....	100	Mt. Vernon Furnace & Mfg. Co.....	95	White Mfg. Co.....	98
Evans Machine Co., L. R.....	101	Mueller Furnace Co., L. J.....	11	White-Rodgers Electric Co.....	*
Field Control Division.....	78			Wise Furnace Co.....	*
Fireline Stove & Furnace Lining Co. 84		National Super Service Co.....	*	Whitney Mfg. Co., W. A.....	90
Fitzgibbons Boiler Co., Inc.....	9	Niagara Machine & Tools Works.....	84	Whitney Metal Tool Co.....	88
Forest City Foundries Co.....	99	Norge Heating & Conditioning Div., Borg-Warner Corp.....	*	Williams Oil-O-Matic Heating Corp.....	*
Frederick Iron & Steel Co.....	90	Northwestern Stove Repair Co.....	88	Williamson Heater Co.....	91
Front Rank Furnace Co.....	*	Olsen Mfg. Co., C. A.....	12	Wilson, Inc., Grant.....	13
		Osborn Co., J. M. & L. A.....	20	Wiss & Sons Co., J.....	100
		Owens-Corning Fiberglas Co.....	73	Wodack Electric Tool Corp.....	101
				Wood Industries, Inc., Gar.....	90
				Zink Co., John.....	80

Firms represented in this issue are identified by the folio of the page on which their advertising appears. Advertising which appears in other issues is marked with an asterisk.



# THREE SHIFTS



For Outstanding Achievement  
in War Production, the Minneapolis  
and Wabash plants of Minneapolis-  
Honeywell have been awarded  
the Army-Navy "E"

HIGHLY SPECIALIZED materiel of war, for combat. Controls for military and defense housing and essential war industry. Around the clock, Minneapolis-Honeywell and its subsidiary, The Brown Instrument Company of Philadelphia, are turning out these vital instruments. Along with their manufacture goes constant research to improve their quality, their accuracy, their ability "to deliver." Side by side with these developments goes research on controls for peace! Controls for heating and air conditioning and industry, which in the bright future, when this epic struggle is won, will inaugurate a new standard for comfort and efficiency in the United States and throughout the world. When you get ready to plan your new home, apartment or industrial building, delegate your control problems to M-H and Brown Engineers ... Minneapolis-Honeywell Regulator Co., 2726 Fourth Ave. S., Minneapolis, Minn. In Canada: Toronto. In Europe: London, England and Stockholm, Sweden. ★ ★

MINNEAPOLIS-HONEYWELL  
Regulator Company

Alias JOHN FREEDOM! ★ Blue Network's Coast to Coast every Monday, 10:15 to 10:45 P. M., E.W.T. ★ "The Most Dramatic Show on the Air"

# MILCOR

PRODUCTS OF STEEL

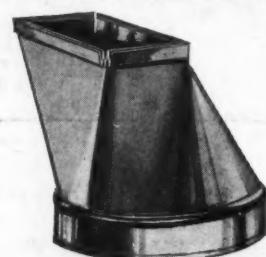
## Names worth remembering

It has paid you to stick with these Milcor products through busy years. Their familiar names stand for qualities that endure—for easier, more profitable installations—for the satisfactory

results that build your reputation. • These qualities—plus the pleasant relations which have existed between us—still are the ingredients of a successful business for us both. • War interrupts our frequent personal contact with you, as well as our ability to supply you with these products. We therefore take this means of assuring you that, to us, this is only an interruption; the Milcor name means just what it has always meant—and

the big Milcor organization will be ready to go the moment peace comes. Look to Milcor for all the old, dependable quality—plus new, interesting developments to stimulate your post-war business.

G-85



MILCOR STEEL COMPANY  
MILWAUKEE, WIS.

CANTON, OHIO

CHICAGO, ILLINOIS • KANSAS CITY, MISSOURI  
NEW YORK, NEW YORK • ROCHESTER, NEW YORK  
BALTIMORE, MARYLAND